CURRICULUM LEARNING EVALUATION INTEGRATED IN THE LIGHT VEHICLE COMPETENCY COMPETENCE STUDY OF PRODUCTIVE LESSON IN SMK NEGERI 2 SURABAYA

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2020

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ESSAY

Submitted to the Universitas Negeri Surabaya to fulfill some of the requirements in completing the Undergraduate Program (S-1) Mechanical Engineering Education S-1 Concentration in Automotive Mechanical Engineering Education

By

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MOTTOS AND OFFERS



The author was born on August 25, 1998 in Pati, Central Java. The formal education that has been taken includes SD Negeri 01 Sinomwidodo, MTs Miftahul 'Ulum Tambakromo, and SMK Permata Nusantara Gabus - Pati with the Light Vehicle Engineering (TKR) expertise program. The author continues his higher education in the S1 Mechanical Engineering Education study program, Automotive Concentration, Department of Mechanical Engineering, Unesa in 2016.

"Life is a choice, depending on how we decide, just stay still or keep moving even if little by little, to achieve our goals"

"God created creatures with various characteristics, all of which complement each other, so always respect all creatures wherever we stand."

"The best ability not only has a lot of knowledge and skills, but most importantly we can be useful in society"

-Ahmad Hafid Abdullah-

Thanks Allah SWT. for the gift and convenience that You give finally this simple thesis can be completed. This thesis is part of my

life's journey to worship Him, because it is to Him that we worship and to Him we ask for help.

At the same time, I dedicate this thesis to myself, my beloved father and mother who always provide support with every breath I take, my brothers (Ana and Ani) who provide motivation on my every trip, Mr. Grummy, the supervisor who always gives the best direction and motivation, friends - friends who contributed greatly to the work of this thesis (Denny Wijaya, Randy I, Bima A, Halim, Bagus H), and my younger siblings at Ciripawati Nasution's rented house (Said, Roby, Ahsan, Yubi, Arip, and kolis), as well as all parties that I cannot name one by one.

I realize that the work of this thesis is still far from perfect, but I hope that the contents will still be useful as knowledge and knowledge for the readers.

Surabaya, April 2020

FOREWORD

Praise the authors, pray for the presence of God Almighty who has bestowed His grace and guidance so that the author can complete the thesis entitled *Evaluation of Integrated Curriculum Learning in Productive Subjects for Light Vehicle Engineering Skills at SMK Negeri 2 Surabaya* this.

The author realizes that the success in completing this thesis cannot be separated from the guidance and assistance and encouragement of various parties. Therefore, the compilers would like to thank:

1. Dr. Maspiyah, M.Kes., As Dean of the Faculty of Engineering, Unesa
2. Dr. Soeryanto, M.Pd., as Chair of the Mechanical Engineering Department and Chair of the Unesa Mechanical Engineering Education Undergraduate Study Program.
3. Dr. A. Grummy Wailanduw, M.Pd., MT, as the supervisor who took a lot of time to guide the author in preparing the thesis.
4. Drs. I Made Muliatna, M.Kes., as a lecturer examiner I thesis.
5. Dr. Soeryanto, M.Pd, as a lecturer examiner II thesis.
6. Mr. and Mrs. Lecturers of the Department of Mechanical Engineering who have provided their knowledge to the author, hopefully it will always be protected by the grace of God Almighty so that the knowledge taught continues to be useful.
7. For all families who have given prayers and support in the process of this thesis.
8. Friends of the class of mechanical engineering, especially Class SA1 2016 who gave enthusiasm in the thesis process.
9. To the academic staff at the Faculty of Engineering, Unesa who provide service assistance for writers.
10. All those who have helped the author a lot, both morally and spiritually.

Hopefully this thesis can be useful and provide broader knowledge about the world of education and its development. The author realizes that this thesis is far from perfect. Therefore, all constructive criticism and suggestions from various parties are expected for the perfection of this thesis.

Surabaya, 23 March 2020

Author

ABSTRACT

EVALUATION OF INTEGRATED CURRICULUM LEARNING IN THE SUBJECTS OF PRODUCTIVE COMPETENCIES IN LIGHT VEHICLE ENGINEERING SKILLS IN SMK NEGERI 2 SURABAYA

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The 4.0 Industrial Revolution is the development of computer automation into sensor technology, an integrated data and network analysis that has changed lives and every human work as a whole. In accordance with the Presidential decree No. 9 year 2016 need to be implemented revitalization of SMK, to run the decree carried out a curriculum alignment program in vocational schools. The purpose of this research is to know whether the implementation of the integrated curriculum is reviewed from the extent of the students ' mastery in the cognitive aspect of light vehicle machine maintenance as per the integrated curriculum and also to know the factors of inhibiting and supporting the implementation.

The methods used in this study are qualitative descriptive. Data was collected using questionnaire techniques, interviews and tests, with questionnaire respondents and interviews including deputy Headmasters and automotive teachers, and test respondents from class XII students. All three methods are used to complement each other and strengthen the research data so as to produce valid and reliable data according to the conditions in the school.

The results of the study of the suitability of integrated curriculum learning is reviewed from the extent to which students mastery of cognitive aspects in the subjects of light vehicle machines in SMK Negeri 2 Surabaya obtained a classic percentage of the one-off 77.27%. The supporting factors for the implementation of integrated curriculum learning include sub-variables of classrooms, workshops, application of K3, materials and equipment (learning media), learning process, evaluation of learning, competency of teachers, number and suitability of human resources, curriculum alignment, PKL, and technology transfer. The inhibitory factor implementation of integrated curriculum learning include sub variables of equipment and media practices, preparation of teaching, time, motivation teachers to innovate, mentoring, teacher training, and absorption of work.

Keywords: Evaluation, Integrated Curriculum, Success Factors.

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CHAPTER 1
INTRODUCTION

A. Background

The industrial revolution 4.0 or Industry 4.0 is also called "The Fourth Industrial Revolution". According to Klaus Schwab, founder and Executive Chairman of the World Economic Forum, explained that the industrial revolution has changed the life and work of humans as a whole (World Economic Forum, 2018). This fourth industrial revolution is the development of computer automation into sensor technology, data analysis and integrated networks that are used to combine production activities, economic activities to consumer needs. The impact is that many large companies have declined due to competition from companies that are innovating and responsive in following developments. There is a need for human resource development to improve skills, ability to innovate and maintain excellence from the consequences of the fourth industrial revolution. Not only will the industrial revolution enter Indonesia, Indonesia will experience a demographic transition. Demographic transition is very favorable when the population of productive age (15-64 years) experiences the largest number compared to the proportion of the population of non-productive age. Because in this proportion of the population, there are benefits that can be enjoyed by a country as a stepping stone to advancing the Indonesian state. In demography, this condition is called the Demographic Bonus. Indonesia is predicted to experience a demographic bonus in the upcoming 2020-2030 years. Quoted from the national site.kompas.com (2019), Surya Chandra, a member of the DPR Commission IX, in a seminar on population issues in Indonesia at the Faculty of Medicine, University of Indonesia, explained that the total age of the workforce (15-64 years) in 2020-2030 will reach 70 percent, while 30 percent are people of non-productive age (under 15 years and over 65 year). When viewed from the number, the population of productive age reaches around 180 million, while the non-productive population is only 60 million. In line with this, as reported by the liputan6.com website (2019), Minister of Finance Sri

Mulyani, also argued that the demographic bonus is one way for Indonesia to progress from a middle income country to a high country. This can only be done if the quality of human resources and institutions becomes positive. With the condition of the demographic bonus, it can certainly be an opportunity for Indonesia to advance welfare and prosper society if people of productive age have quality resources that can support and contribute to the country's development. If a country fails to take advantage of this demographic bonus, it is clear that there will be huge losses for the Indonesian state.Every year, technological innovations in the industrial sector are increasing and it is necessary to increase access and quality of vocational secondary education and human resources who have superior quality competencies and can read opportunities in facing industrial changes 4.0, so that Indonesia can benefit from the demographic bonus.

According to Central Statistics Data (BPS, 2019), the open unemployment rate (TPT) in Indonesia in February 2019 decreased to 5.01 percent from February 2018 which was 5.13 percent. Of the 136.18 million people who enter the labor force, there are 129.36 million people who work and as many as 6.82 million people are unemployed. Of the total unemployed, the number of unemployed people who graduated from elementary school (SD) was in the lowest rank, namely 2.65 percent, followed by junior high school graduates with 5.04 percent, university graduates 6.24 percent, high school graduates (SMA). namely 6.78 percent, Diploma I / II / III graduates namely 6.89 percent, and Vocational High School (SMK) graduates are in the top rank, namely 8.63 percent. The large contribution of SMK graduates to the number of unemployed in Indonesia is due to the low special skills or soft skills of SMK graduates. Through SMK it is hoped that students will be able to become skilled, work-ready personnel capable of mastering the development of science and technology, and able to fill job vacancies in the business and industrial world as described in Article 15 of the 2003 National Education System Law.

*Roadmap*The Directorate General of Vocational High School Education (PSMK) 2015-2019 (Renstra PSMK, 2015) explains that the vision of the Directorate General of Vocational High School Education (PSMK) is to create vocational high

schools that can produce graduates with entrepreneurial spirit who are ready to work, smart, competitive, and have a national identity, as well as being able to develop local advantages and be able to compete in the global market. And supported by Presidential Instruction (Inpres) Number 9 of 2016, which instructs local governments to revitalize Vocational High Schools which aim to improve the quality and competitiveness of human resources. There are 6 main issues in the revitalization of SMK, including: curriculum development and alignment, learning innovation, fulfillment and improvement of professionalism of teachers and education personnel, standardization of main facilities and infrastructure, updating of work programs with industry, management and institutional arrangement (DITPSMK, 2018). Improving the quality of SMK is carried out by aligning the curriculum with the needs of users of SMK graduates in the business and industry sectors (link and match). The link and match in the revitalization of SMK is expected that SMK graduates have competencies that are ready to be used in the business world and industry for productive age. The industrial world needs personnel who are competent, innovative and able to read opportunities in the face of the industrial revolution 4.0. In addition, it is hoped that vocational school workers can be maximally absorbed and reduce unemployment in Indonesia. In 2017 there were 125 vocational high schools which implemented the revitalization program, in 2018 to 219 SMK in 34 provinces and this number will increase in 2019 to 350 SMK. There are several vocational schools in East Java that have received the SMK revitalization program. One of them is SMKN 2 Surabaya which chooses a curriculum alignment program in the Light Vehicle Engineering Expertise Program.

One of the main agendas in the development of education development is the development of the quality and quality of the curriculum. This becomes the basis for achieving high quality and competitive graduates and reaching national and even international scope. This is also based on Government Regulation no. 19 of 2005 regarding the minimum requirements for formal education units in order to meet the desired quality of education. Print (1992) expressed his opinion about improving the quality of the curriculum, namely "*the very substance of schooling and*

raison d'etre for teachers in schools". This implies that if the quality of an education is to be improved, it is necessary to first improve the quality of the curriculum. SMK is oriented towards the labor market, preparing graduates who have competencies according to the needs of the industrial world and are able to face the 4.0 industrial revolution in Indonesia.The curriculum in the implementation of education in SMK is very important so that the curriculum must be handled and adjusted to the needs of the Business World / Industrial World (DU / DI). Alignment of the curriculum also needs to involve industry in preparing the curriculum to meet the competencies required in the industry. Where the results of curriculum alignment between SMKN 2 Surabaya and Daihatsu are called the integrated curriculum.Curriculum relevance and *link and match* between the competencies formed by SMK with the competency needs of DU / DI is a measure of the success of curriculum implementation. The process of forming competencies in SMK is oriented towards 21st century learning skills by developing a learning process that emphasizes on *higher order thinking skills (HOTS)* and application of literacy skills and strengthening character education.

The implementation of integrated curriculum learning must be supported by infrastructure and industry-oriented implementation to support an atmosphere of a real learning experience. Through this process it is expected to produce graduates who have high job competitiveness. In the learning process, the teacher must be able to master the technology and subject matter that will be taught to students according to the integrated curriculum. From school data, the national exam results scores have decreased several years before, and when graduates work in a workshop they not only have good practice skills, but also have good knowledge (cognitive aspects), so that when customers ask questions about mechanics they can explain to the customer well.Therefore there is a need for an evaluation at SMKN 2 Surabaya which implements an integrated curriculum for the light vehicle engineering expertise package in the learning process of the curriculum results on the cognitive aspects. Meanwhile, the psychomotor and affective aspects cannot be done, because they are hampered by time that does not allow, such as the preparation of UKK and exams.Through this evaluation, it is hoped that it can be

seen how the implementation process in learning activities, the extent of student mastery in mastering competencies, what obstacles and obstacles are faced in the implementation process. And what things should be improved and improved in the process of implementing the integrated curriculum.

Based on the description above, a study entitled "Evaluation of Integrated Curriculum Learning on Productive Subjects for Light Vehicle Engineering Skills at SMK Negeri 2 Surabaya" is needed to help improve the quality of schools and it is hoped that it will become a material for government evaluation in implementing SMK revitalization.

B. Identification of problems

based on the background of the problems related to the implementation of the integrated curriculum above, the problems that can be identified are:

1. The high level of open unemployment for SMK graduates.
2. Inadequate facilities and infrastructure in the implementation of integrated curriculum learning.
3. The learning model used has not been supportive in improving the quality of graduates according to industry needs.
4. The mismatch of competences possessed by SMK graduates with the competencies needed in the industrial world.
5. Graduates are less absorbed in the relevant industrial world.
6. National Examination scores in productive subjects have decreased.
7. Lack of further supervision and evaluation from the government on the implementation of the synchronized curriculum.

C. Problem Limits

based on the description of the background of the problem and the identification of the problems described above, the problem in this study is limited to the learning outcomes in the cognitive aspects of the Light Vehicle Engine Maintenance subject for class XI, supporting factors and inhibiting factors in the implementation of integrated curriculum learning at SMK Negeri 2 Surabaya on Light Vehicle Engineering Skills Competency. With the population of data

collection on parties related to or directly involved in the implementation of integrated curriculum learning.

D. Problem Formulation

Based on the background of the problems described above, the formulation of the problem in this study are:

1. The extent to which students master the cognitive aspects of the subject Maintenance of Light Vehicle Engines according to the integrated curriculum at SMK N 2 Surabaya?
2. Are there any factors that support the implementation of curriculum learning *integrated* on the Light Vehicle Engineering Skills Program at SMKN 2 Surabaya?
3. Are there any factors that hinder the implementation of curriculum learning *integrated* on the Light Vehicle Engineering Skills Program at SMKN 2 Surabaya?

E. Research purposes

Based on the formulation of the problems mentioned above, the objectives of this study are:

1. This is to find out the extent of student mastery in the cognitive aspects of the light vehicle engine maintenance subject according to the integrated curriculum at SMKN 2 Surabaya.
2. To find out how many and what factors support the implementation of integrated curriculum learning at SMKN 2 Surabaya.
3. To find out how many and what are the factors that become obstacles in the implementation of integrated curriculum learning at SMKN 2 Surabaya.

F. Benefits of Research

From the results of this study, it is expected to have beneficial values, especially:

1. Theoretical Benefits
   a. Seas material for scientific information regarding the implementation of integrated curriculum learning.
   b. Seas considerations for further researchers regarding the implementation of integrated curriculum learning which is applied in SMK.
2. Practical Benefits
   a. For schools

1) Assisting schools in developing an integrated curriculum.
2) Helping to improve the quality of the implementation of the integrated curriculum by minimizing inhibiting factors and maximizing the supporting factors for the implementation of integrated curriculum learning at SMK.

b. For researchers

Adding to the knowledge possessed by researchers and applying the knowledge that has been obtained while carrying out the knowledge in college and adding insight in the implementation of integrated curriculum learning in SMK.

c. For the Government

In addition to the evaluation of the SMK revitalization program, particularly in the field of curriculum alignment. And as one of the considerations in determining the next policy, so that the quality of the revitalization program can improve the quality of graduates.

CHAPTER II

LITERATURE REVIEW

A. Vocational High School

1. Vocational Education Paradigm

Vocational education is the implementation of a formal education pathway that is carried out at the secondary level of education, namely: vocational secondary education in the form of Vocational High Schools (SMK) as stipulated in Law No. 20 of 2003 concerning the National Education System.

Evans & Edwin explained that the characteristics of vocational education as preparation for entering the world of work are understandable, because historically vocational education is the development of on-the-job training and apprenticeship patterns. Vocational high schools (SMK) are schools that develop and continue basic education and prepare their students to work, either working alone or working as part of a group according to their respective fields (Kemendikbud, 2016).

According to Kamdi, in the magazine of the Directorate of Vocational Education, provides an illustration that in 2025, Indonesia has a vision in planning to become one of the vocational (vocational) countries which makes the ratio of Senior High School (SMA) and Vocational High School (SMK) to 30 respectively: 70 (DITPSMK, 2017). This shows that the government will focus more on the development of SMKs in accordance with this vision. In accordance with Law No. 17 of 2007 concerning the National Long-Term Development Plan (RPJPN) 2005-2025. One of the programs is the provision of quality education to improve the quality of a competitive workforce through vocational education.

2. Characteristics of Vocational Education

According to Damarjati (2016), the characteristics of vocational education according to Djojonegoro are as follows:

a. Vocational education is more focused on preparing students to enter the workforce.
b. Vocational education is based on "demand-driven" (the needs of the world of work).
c. The focus of vocational education content is emphasized on mastering the knowledge, skills, attitudes and values needed by the world of work.
d. The real assessment of student success must be “hands-on” or performance in the world of work.
e. Having a close relationship with the industrial world is the key to successful vocational education.
f. Good vocational education is always following technological developments.
g. Vocational education is more emphasized on learning in practicum.
h. Vocational education requires standard facilities for practicum implementation.
i. Vocational education requires more investment and operational costs than general education.

3. Purpose of Vocational Education

The objectives of vocational secondary education according to Law Number 20 of 2003 are divided into general goals and specific goals. The general objectives of vocational secondary education are:

a. Increase the faith and devotion of students to God Almighty.
b. Developing the potential of students to become citizens with noble, healthy, knowledgeable, competent, creative, independent, democratic and responsible characters.
c. Developing the potential of students to have an insight into the nationality, understand and appreciate the cultural diversity of the Indonesian people.
d. Developing the potential of students in order to have environmental concerns by actively participating in maintaining and preserving the environment, and utilizing natural resources effectively and efficiently.

The specific objectives of vocational secondary education are as follows:

a. Preparing students to become productive humans, able to work independently, to fill existing job vacancies as middle-level workers according to the competencies in the expertise program they choose.
b. Prepare students to be able to choose careers, be resilient and persistent in competence, adapt to the work environment and develop a professional attitude in the field of expertise they are interested in.
c. Equip students with science, technology and art so that they are able to develop themselves in the future both independently and through higher education levels.
d. Equip students with competencies in accordance with the chosen expertise program.

4. Revitalization of SMK

Revitalization is a process or method and action to revive something that was previously empowered. Educational Revitalization is an effort that is more careful, more persistent and more responsible for realizing the goals of national education development in accordance with the mandate of Law Number 20 of 2003 concerning the National Education system.There are 6 main issues of vocational revitalization, including: curriculum development and alignment, learning innovation, fulfillment and improvement of the professionalism of teachers and education personnel, standardization of main facilities and infrastructure, updating of work programs with industry, management and institutional arrangement (DITPSMK, 2018). There are 10 revitalization steps, including revitalization of human resources; build SIM-based SAS; link and match with industry; alignment of industry-based curriculum / curriculum; teaching factory; use of video tutorial media and video-based portfolio of e-report skills; professional certification test; fulfillment of facilities and infrastructure; developing local wisdom and the role of SMK as a driving force for the local economy.Following up on Presidential Instruction No. 9 of 2016, the Minister of Education and Culture clearly instructs to perfect and align the SMK curriculum according to the competency needs of graduate users (link and match). "Link" and "match" suggest that graduates have competitive

insights or attitudes, such as work ethics, achievement motivation, mastery, competitiveness, understanding the meaning of money (money beliefs). , and attitudes to saving.

B. Curriculum

1. Understanding Curriculum

Curriculum (Curriculum) in ancient Greek comes from the word Curir which means runner and Curere which means a place to run. Curriculum defines the distance the runner has to cover. Hass (1980) argued that "the curriculum is all of the experiences that individual learners have a program of education whose purpose is to achieve theory and research or past and present professional practice". This statement means that the curriculum is all experiences learned by individuals in an educational program that aims to achieve research theory and practice or the past or current.

The curriculum according to Law Number 20 Year 2003 Article 1 Paragraph (19) is a set of plans and arrangements regarding the objectives, content, and learning materials as well as the methods used as guidelines for implementing learning activities to achieve certain educational goals. Based on these opinions, it can be concluded that the curriculum is an educational program that contains various teaching materials that are planned and systematically designed on the basis of applicable norms which are used as guidelines in the learning process for education personnel and students to achieve educational goals.

2. Curriculum Development

This educational objective emphasizes the "strong character" which has been maintained until now. To achieve these educational goals, a curriculum is compiled. The curriculum itself has undergone changes from 1947, 1964, 1968, 1973, 1975, 1984, 1994, 1997, 2004, 2006, and 2013.These changes are a logical consequence of changes in political, socio-cultural, economic, and science and

technology systems in society. nation and state. The following is explained by the flow scheme of curriculum development in Indonesia:

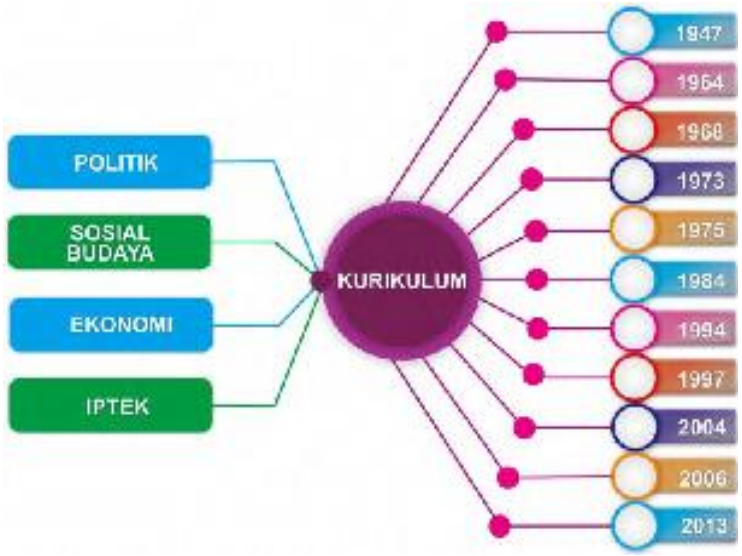

Figure 2.1 Schematic of Curriculum Development Flow in Indonesia

(Source: Hadam, et al. 2017)

3. Principles of the SMK Curriculum

According to Sukmadinata's opinion, (2009: 150), there are several general principles in curriculum development, including:

a. Relevance

There are two kinds of relevance, namely inward and outward. Relevance means conformity or consistency between curriculum components, namely the objectives of the SMK, content, delivery process and assessment in the SMK. The external relevance is that the curriculum should be relevant to the demands, needs and development of the business / industry world.

b. Flexibility

The curriculum is flexible in that it is easy to adjust, change, complete or reduce based on the demands and conditions of the ecosystem and local capabilities, so it is not static or rigid.

c. Continuity

The process and development of children's learning takes place continuously, not intermittent or stop. Therefore, the learning experiences

provided by the curriculum should be continuous from one grade level to another, between one level of education and work.

d. Practical

The skills taught are in accordance with the implementation in the Business / Industrial World and use tools tailored to the needs of the Business / Industrial World.

e. Effectiveness

The success of implementing a curriculum should be seen from its quality and quantity.

There are several more specific principles in curriculum development. These principles include, among others:

a. Principles with respect to educational goals.
b. Principles with regard to the selection of educational content.
c. The principle relates to the selection of the teaching and learning process that must pay attention to several things in the process of teaching and learning activities.
d. Principles with regard to the selection of media and teaching tools.
e. Principles relating to the selection of assessment activities.

4. Vocational School Curriculum Learning Strategies

a. "Link and match", is a new policy for education development which is often translated as related and equivalent.
b. Approach from "supply-driven" to "demand-driven". The old "supply-driven" approach was carried out unilaterally by the implementation of vocational education, starting from planning, curriculum preparation and evaluation. The "demand-driven" approach expects that the business world, the industrial world or the world of work should play a more important role in determining the promotion and movement of vocational education as having an interest from the perspective of the workforce.
c. The change from school-based education to dual-based school-based programs to dual-based programs expects vocational education programs to be implemented in two places.

5. 2013 SMK curriculum

a. Characteristics of the 2013 Curriculum

According to Permendikbud 2018, the 2013 Curriculum is designed with the following characteristics:

1) Develop a balance between spiritual and social attitudes, knowledge and skills, and apply them in various situations in schools and communities;
2) Placing schools as part of the community that provides learning experiences so that students are able to apply what they learn in school to the community and take advantage of the community as a learning resource;
3) Give sufficient time to develop various attitudes, knowledge and skills;
4) Develop competencies that are expressed in the form of class core competencies which are further detailed in the basic competencies of subjects;
5) Developing core class competencies into organizing elements of basic competencies. All basic competencies and learning processes are developed to achieve the competencies stated in core competencies;
6) Developing basic competencies based on the principles of accumulative, mutually reinforcing and enriched between subjects and levels of education (horizontal and vertical organizations).

b.2013 Curriculum Goals

The 2013 curriculum aims to prepare Indonesian people to have the ability to live as individuals and citizens who are faithful, productive, creative, innovative, and affective and able to contribute to the life of society, nation, state and world civilization.

c. 2013 SMK Curriculum Structure

Table 2.1 Curriculum Structure of Light Vehicle Engineering Skills Competency

SUBJECTS		TIME ALLOCATION
A. National Content		
1	Religion and manner education	318
2	Pancasila and civic education	212

3	Indonesian	320
4	Mathematics	424
5	Indonesian History	108
6	English and Other Foreign Languages *)	352
Amount A		1734
B. Territorial Contents		
1	Art and culture	108
2	Sports physical Education and health	144
Total B		252
C. Content of Vocational Requests		
C1. Basic Expertise		
1	Simulation and Digital Communication	108
2	Physics	108
3	Chemistry	108
C2. Basic Expertise Program		
1	Automotive Engineering Drawing	144
2	Basic Automotive Technology	144
3	Basic Automotive Work	180
C3. Competency Skills		
1	Maintenance of Light Vehicle Engines	594
2	Maintenance of Chassis and Light Vehicle Power Transfer	560
3	Kendaaran Light Electrical Maintenance	560
4	Creativity and Entrepreneurship Products	524
Total C		3,030
Total		5,016

(Source: Permendikbud, 2018)

6. Curriculum Alignment

It is hoped that the alignment of the curriculum in schools with the world of work can produce quality graduates or job seekers who can meet the qualifications and requirements needed by the world of work or be able to do self-employment. The ultimate goal of this alignment is to create a paradigm of "the right man on the right place", enrich employment through entrepreneurship and at the same time reduce unemployment. The curriculum that is applied at the 2 Surabaya Vocational High School in accordance with industry needs through the flow or process of curriculum alignment is called the Integrated Curriculum. The following describes the sequence of aligning the school curriculum with industry.

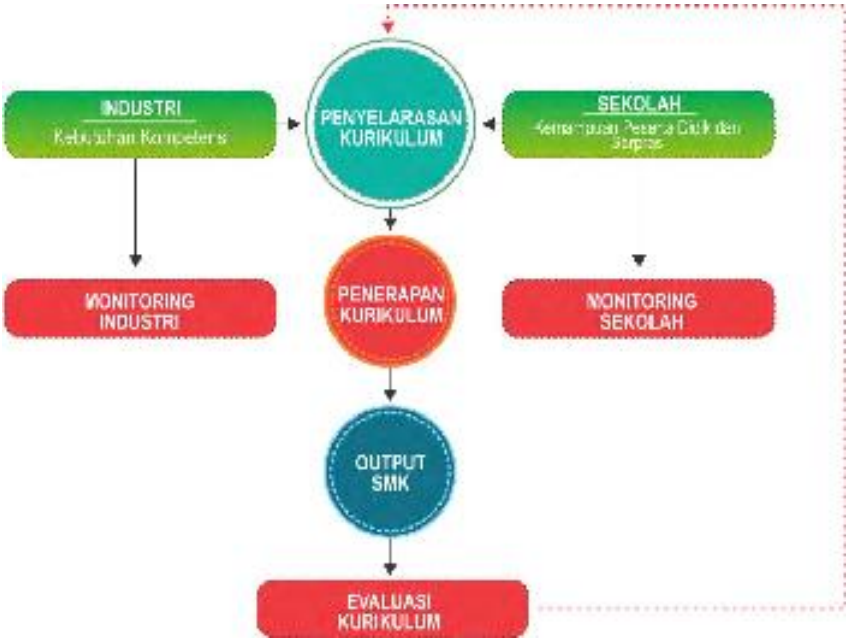

Figure 2.2 Curriculum Alignment Scheme

(Source: Hadam, et al. 2017)

The implementation of the industrial curriculum at the SMK level will bring tremendous benefits to the development of SMK as follows:

a. Improve the competence of SMK graduates
b. It is easier to design a competency-based curriculum because it directly meets the demands of the business world.
c. The labor recruitment pattern will no longer be difficult. This means that SMK stakeholders can recommend high-achieving students to become workers.
d. The creation of expected success in work, with the criteria used by teachers with reference to the standards or work procedures that have been determined by the world of work (business and industry).

7. Integrated Curriculum

a. Understanding the Integrated Curriculum

Integrated comes from the word "integer" which means unit. By integration, it means cohesion, coordination, harmony, and overall unanimity. According to Syarif (1996) in his book "Curriculum Development", an integrated curriculum is a curriculum based on the philosophy of democratic

education, sociological, cultural, and based on the needs, interests, and levels of student development and growth.

At SMK Negeri 2 Surabaya, the integrated curriculum has been used since 2015, the integrated curriculum is a curriculum from the school (the 2013 revised curriculum in 2018) which has been carried out in a process of synchronization with the industrial world (Daihatsu) with the addition of competencies according to industry needs.

b. Integrated Curriculum Features

The characteristics of an integrated curriculum according to Hamalik (1999) are as follows:

1) Based on the philosophy of democratic education;
2) Based on Gestalt or organismic learning psychology;
3) Based on sociological and socio-cultural foundations;
4) Based on the needs, interests, and level of development or growth of students;
5) This form of curriculum is not only supported by all existing subjects or fields of study, but is broader. In fact, new subjects or fields of study may emerge and be used for problem solving;
6) The delivery system uses a unit teaching system, either an experience unit or a subject matter unit;
7) The teacher's role is as active as the student's. In fact, the role of students is more prominent in teaching and learning activities, and the teacher acts as a guide.

c. Comparison of Curriculum Structures

Comparison of the Integrated Curriculum Structure with the 2013 Curriculum for Class XI Light Vehicle Engine Maintenance Subject as follows:

Table 2.2 Comparison of Integrated Curriculum Structure with 2013 Curriculum

CURRICULUM 2013		INTEGRATED CURRICULUM	
BASIC COMPETENCIES	CLOCK ALLOCATION	BASIC COMPETENCIES	CLOCK ALLOCATION
3.1 Applying the maintenance of the main engine system and valve mechanism	8	3.1. Apply the main engine maintenance system and valve mechanism (conventional engine and Efi VVTi)	8
4.1 Periodic maintenance of the main engine system and valve mechanisms	16	4.1. Regularly maintaining the main engine system and valve mechanisms (conventional engines and Efi VVTi	16
3.2 Applying the maintenance of the lubrication system	8	3.2. Applying the maintenance of lubrication systems (conventional engines and Efi VVTi)	8
4.2 Periodic maintenance of the lubrication system	16	4.2. Periodically maintaining the lubrication system (conventional engines and Efi VVTi)	16
3.3 Implementing cooling system maintenance methods	8	3.3. Apply cooling system maintenance methods (conventional engines and Efi VVTi)	8
BASIC COMPETENCIES	CLOCK ALLOCATION	BASIC COMPETENCIES	CLOCK ALLOCATION
4.3 Periodic maintenance of the cooling system	16	4.3. Regularly maintaining the cooling system (conventional engines and Efi VVTi)	16
3.4 Implementing conventional gasoline / carburetor fuel system maintenance methods	8	3.4. Implementing conventional gasoline / carburetor fuel system maintenance methods	8
4.4 Regular maintenance of the conventional gasoline / carburetor fuel system	16	4.4. Regularly maintaining conventional gasoline / carburetor fuel systems	16
3.5 Applying the maintenance of the fuel injection fuel system (Electronic Fuel Injection / EFI)	8	3.5. Applying the maintenance of the fuel injection system (Electronic Fuel Injection / EFI)	8
4.5 Periodically maintaining the fuel injection fuel	16	4.5. Regularly maintaining the fuel injection	16

system (Electronic Fuel Injection / EFI)		system (Electronic Fuel Injection / EFI)	
3.6 Implementing the Maintenance Engine Management System (EMS)	8	3.6. Understanding the Quality Control System Circle (QCC) in the School Environment	4
4.6 Regular maintenance of the Engine Management System (EMS)	16	4.6. Implementing Quality Control System Circle (QCC) in the School Environment	4
3.7 Apply In-Line injection pump diesel fuel system maintenance way	16	3.7. Understand Periodic Care up to CH 20,000 KM	8
4.7 Regular maintenance of In-Line diesel fuel injection pump system	16	4.7. Perform Periodic Maintenance up to CH 20,000 KM	8
3.8 Implementing the treatment method of Rotary injection pump diesel fuel system	16	3.8. Implementing the Maintenance Engine Management System (EMS) method	8
4.8 Regular maintenance of the rotary diesel fuel injection pump system	16	4.8. Regularly maintaining the Engine Management System (EMS)	16
3.9 Applying the maintenance of Common Rail diesel fuel systems	16	3.9. Understand Using EFI Scanners	8
4.9 Periodic maintenance of the Common Rail diesel fuel system	24	4.9. Doing Using EFI Scanner	
3.10 Evaluating the results of periodic maintenance of light vehicle engines	16	3.10. Apply In-Line injection pump diesel fuel system maintenance methods	8
BASIC COMPETENCIES	CLOCK ALLOCATION	BASIC COMPETENCIES	CLOCK ALLOCATION
4.10 Checking the results of periodic maintenance of vehicle engines	24	4.10. Periodic maintenance of In-Line diesel fuel injection pump system	16
		3.11. Applying the way of caring for the rotary injection pump diesel fuel system	8
		4.11. Maintain regular rotary diesel fuel injection pump system	16
		3.12. Applying the common rail diesel fuel	8

		system maintenance methods	
		4.12. Periodic maintenance of the Common Rail diesel fuel system	16
		3.13. Evaluating the results of periodic maintenance of light vehicle engines	8
		4.13. Checking the results of periodic maintenance of light vehicle engines	8
		3.14. Understanding One Sheet Report in the School Environment	4
		4.14. Implementing One Sheet Report in the School Environment	4
		3.15. Understand Periodic Care to CH. 40.0000 KM	8
		4.15. Performing Periodic Maintenance up to CH. 40.0000 KM	8
AMOUNT	288	AMOUNT	288

(Source: SMKN 2 Surabaya Curriculum, 2019)

8. Curriculum Evaluation

a. Definition of Curriculum Evaluation

According to the 2014 Permendikbud, Curriculum Evaluation is a series of planned, systematic, and systemic activities in gathering and processing information, providing consideration in making decisions to improve the curriculum. Curriculum Evaluation functions as an effort to continuously improve the curriculum at the national, regional, and educational level.

b. Purpose of Curriculum Evaluation

Curriculum evaluation aims to obtain information about:

1) Conformity between Curriculum Ideas and Curriculum Design;
2) Conformity between Curriculum Design and Curriculum Documents;
3) Conformity between Curriculum Documents and Curriculum Implementation; and

4) Conformity between Curriculum Ideas, Curriculum Results, and Curriculum Impacts.

c. Curriculum Evaluation Components

Table 2.3 Curriculum Evaluation Components

No.	Evaluation Aspects	Sub Aspects	Indicator
1	Curriculum Document Development	The suitability between the substance of the curriculum document and curriculum design.	Curriculum Design a. Destination b. Contents c. Lesson material d. Guidelines for implementing learning activities
			Curriculum Documents a. Curriculum documents for each educational unit or educational program b. Curriculum documents for each subject c. Guidelines for curriculum implementation d. Textbooks for lessons e. Teacher's manual f. Other curriculum documents
2	Curriculum Implementation	Conformity between Curriculum Implementation and Curriculum Documents	a. Document tool b. Book c. Training d. Accompaniment e. Monitoring for the smooth implementation of learning

No.	Evaluation Aspects	Sub Aspects	Indicator
3	Curriculum Results	Conformity between learning outcomes with KI and SKL	a. Attitude competence b. Knowledge competence c. Skills competence
4	Curriculum Impact	The implications of the acquisition of competencies on changes in collective behavior in the surrounding community	Changes in the collective behavior of the surrounding community

(Source: Author's Process, 2019)

d. Evaluation Implementation Mechanism

1) Establishing curriculum evaluation policies
2) Formation of a work team
3) Master curriculum evaluation design
4) Implementation of evaluation
5) Preparation of reports

e. Legal Basis for Implementation of Curriculum Evaluation

1) 1945 Constitution
2) Law No. 20 of 2003 concerning the National Education System.
3) Presidential Instruction No. 9 of 2016 concerning Vocational School Revitalization
4) Permendikbud Number 36 of 2018 concerning Amendments to the Regulation of the Minister of Education and Culture Number 59 of 2014 concerning the 2013 Curriculum for Senior High Schools / Madrasah Aliyah
5) Regulation of the Director General of Primary and Secondary Education, Ministry of Education and Culture Number 7 of 2018 concerning Curriculum Structure of Vocational Schools (SMK) / Madrasah Aliyah Vocational (MAK)

6) Regulation of the Minister of Education and Culture Number 54 of 2013 concerning Competency Standards for Primary and Secondary Education Graduates
7) Regulation of the Minister of Education and Culture of the Republic of Indonesia Number 81a of 2013 concerning Implementation of the Curriculum
8) Permendikbud Number 159 of 2014 concerning Curriculum Evaluation.

C. Learning

1. Learning Concept in SMK

In Law No. 20 of 2003 concerning the National Education System article 1 paragraph 20 states that learning is the process of interaction of students with educators and learning resources in a learning environment. Learning is the empowerment of the potential of students into competencies. This empowerment activity cannot run well without someone to guide it. According to Dimiyati and Mudjono (Sagala, 2011: 62) learning is a teacher activity programmed in instructional design, to make learning actively, which emphasizes the provision of learning resources.

It can be concluded that learning is a conscious effort from educators to make students get behavioral changes in themselves. Changes in behavior can be generated from new knowledge and knowledge that educators provide to their students. Science and knowledge can be conveyed well to students' perseta with efforts between the two parties, namely educators and students.

2. Learning Realm

a. Cognitive Realm

The cognitive domain is a domain that includes mental (brain) activities. Bloom classifies the cognitive domain into six categories from the simple to the most complex and is assumed to be hierarchical, which means that goals at high levels can be achieved if goals at low levels have been mastered (Sudijono, 1996: 49-50). The level of competence can be seen in the following figure:

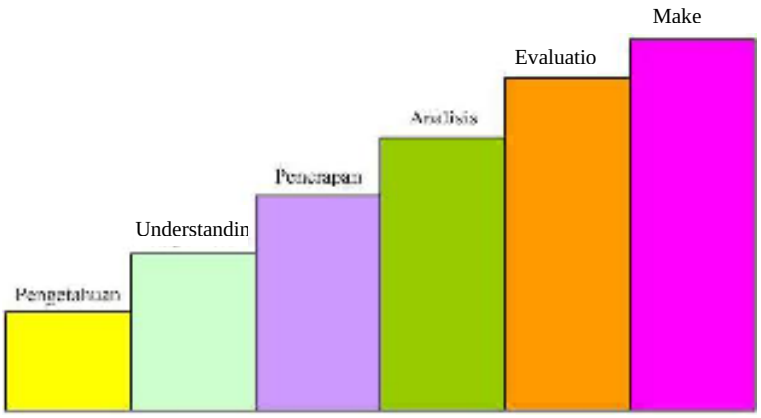

Figure 2.3 Cognitive Areas According to Bloom, et al.

(Source:Asrul and Rosnita, 2014)

To measure cognitive can be done by tests, namely: oral tests in class, multiple choice, objective descriptions, non-objective descriptions, short answers, matchmaking, performance and portfolio (Mardapi, 2012).

b. Affective Domain

The affective domain is the realm related to attitudes and values. Attitude is a psychological term that deals with perception and behavior. Krathwohl (1964) developed this taxonomy which is oriented to feelings or affective. This taxonomy describes a person's process in recognizing and adopting certain values and attitudes that guide him in behavior. Affective domain, Krathwohl divides it into five categories / levels, namely; Recognition (receiving), giving response (responding), appreciation of value (valuing), organizing (organization) and practice (characterization) (Winkel: 150)

c. Psychomotor Realm

The psychomosotor domains according to Dave (1967) are: (a) imitation, (b) manipulation, (c) accuracy, (d) articulation, and (e) naturalization.Imitation: observing and making other people's behavior a pattern. Manipulation: being able to demonstrate certain behaviors by following instructions and practices. Accuracy: improving the method to make it more precise. Articulation: coordinating a series of actions, achieving harmony and internal consistency. Naturalization: already has a high level of performance so that it becomes natural, you don't need to think much in doing it.

3. Cognitive Realm

a. Level of Cognitive Questions

The cognitive level of the question is the level of thinking ability which is the level of the system that provides a variety of strategic thinking that a person needs to manipulate and use knowledge. (Purwanto, 2012) The cognitive level of the questions is measured by describing the cognitive abilities used in solving the questions. Given that (C1) isthe abilities used to recognize or recall previously learned knowledge in the form of terms, facts, concepts, procedures, and methods. Understanding (C2) is an ability that is used in the form of constructing the meaning of the learning material, including what is spoken, written, and drawn by the teacher. Applying (C3) is the ability to use in the form of applying or using procedures in certain circumstances. Analyzing (C4) is the ability used in the form of breaking the material into its constituent parts and determining the relationships between the parts and the relationship to the overall structure. Evaluating (C5) is the ability to make decisions based on criteria and / or standards.

Table 2.4 Operational Verbs in the Cognitive Domain

Cognitive Level	Operaional Verbs
C1. Remember	Quoting, Mentioning, Explaining, Drawing, Counting, Identifying, Listing, Showing, Labeling, Indexing, Interpreting, Reading, Naming, Marking, Memorizing, Imitating, Taking Notes, Repeating, Reproducing, Reviewing, Choosing, Tabulating, Codeing, Writing , Declare, Trace
C2. Understand	Estimate, explain, tell, categorize, characterize, detail, associate, compare, count, contrast, weave, discuss, exemplify, suggest, contend, expand, conclude, predict, summarize, describe, extract, transform, defend, interpret, explain, Interpret, Predict, Report, Differentiate
C3. Apply	Assign, Sort, Define, Apply, Calculate, Modify, Count, Build, Preven Determine, Describe, Use, Assess, Train, Dig, Propose, Adap Investigate, Question, Conceptualize, Implement, Produce, Proces Associate, Arrange, Solve, Perform, Simulate, Tabulate, Proces Familiarize, Classify, Adapt, Operate, Predict
C4. Analyze	Audit, Organize, Animate, Collect, Solve, Affirm, Analyze, Select, Detail, Nominate, Diagram, Correlate, Test, Enlighten, Frame, Summarize, Explore, Maximize, Order, Link, Transfer, Train, Edit,

Cognitive Level	Operaional Verbs
	Find, Select, Correct, Detect, Study, Measure, Wake Up, Rationalize, Diagnose, Focus, Integrate
C5. Evaluate	Comparing, Concluding, Assessing, Directing Predicting, Clarifying, Assigning, Interpreting, Defending, Detailing, Measuring, Summarizing, Proving, Validating, Testing, Supporting, Choosing, Projecting, Criticizing, Directing, Deciding, Separating, Considering
C6. Make	Collecting, Abstracting, Organizing, Animating, Categorizing, Constructing, Creating Correcting, Planning, Integrating, Dictating Shaping, Enhancing, Coping, Generalizing, Combining, Designing, Limiting, Repairing, Making, Preparing, Producing, Clarifying Summarizing, Reconstructing, Composing Composing, Coding Combining, Facilitating, Constructing, Formulating, Connecting, Creating, Displaying

(Source: Sukartono, 2019)

b. Composition of the Cognitive Level of Problem

1) Comparison of Cognitive Questions Composition Based on Experts

Sudjana (2004) argues that the ratio of good questions for the criteria for easy, medium, and difficult questions is 3: 4: 3. Sudarsyah (2013) states that in practice, the difficulty level of the questions will follow Bloom's cognitive taxonomic hierarchy. Easy category questions will be developed based on the level of cognitive ability to know and understand. Problem categories are being developed from the level of ability to apply and analyze. Meanwhile, questions categorized difficult to develop from the level of ability to evaluate or create.

Based on this comparison, the percentage of questions for each cognitive level in Bloom's taxonomy is formulated as follows, 30% for C1 and C2, 40% for C3 and C4, 30% for C5 and C6.

2) DUDI's expectations competencies according to previous research

According to Widiyanto's (2011) research results, in general DU / DI in the city of Semarang in choosing competencies emphasizes behavioral competence (attitude). The competency expectations of the industrial world from the findings in the field can be detailed in the table as follows

Table 2.5 DUDI's Expectation Competencies

No.	Category	Hope
1	Knowledge (Knowledge)	- Knowledge by Field - Academic Value - General knowledge - Business Knowledge
	Skill (Skill)	- Ability - Skills - Proficiency - Creativity
3	Behavior (Attitude)	- Ethics - Motive - Integrity (self-confidence) - Communication
4	Other	- Experience - Another additional ability - Hobby

(Source: Widiyanto, 2011)

3) Composition Analysis of Cognitive Levels according to SKKNI

In the Indonesian National Work Competency Standards (SKKNI) there is a list of competency units in the Automotive sector, the 4-wheeled light vehicle sub-sector. To analyze the cognitive level according to the needs of the industry, one must first classify the operational words contained in the SKKNI and determine according to the cognitive level. The following is a table of cognitive level operational word groupings from SKKNI:

Table 2.6 Classification of Operational Words at the Cognitive Level of the SKKNI

No.	Operational Words	Number of Words	Cognitive Level
1	Doing	6	C3
2	To do	18	C3
3	Take off	2	C3
4	Install	3	C3
5	Read pictures	1	C4
6	Maintain	13	C4
7	Check	3	C4
8	Fix	31	C5
9	Replace	2	C4
10	Use	2	C3
11	Test	1	C4

No.	Operational Words	Number of Words	Cognitive Level
12	Assemble	1	C6
13	Stringing	2	C6

(Source: Author's Process, 2019)

After obtaining the operational word grouping and also the cognitive level of each word, then calculating the percentage of cognitive level which will be used to determine the percentage of questions that will be made according to industry needs according to SKKNI. The following is a percentage table of the number of questions that have been calculated:

Table 2.7 Percentage of Number of Questions according to Industry Needs according to SKKNI

No.	Cognitive Level	Percentage of Number of Questions (%)
1	C1 (Given)	0%
2	C2 (Understand)	0%
3	C3 (Apply)	36%
4	C4 (Analyze)	24%
5	C5 (Evaluate)	36%
6	C6 (Make)	4%

(Source: Author's Process, 2019)

D. Productive Subjects

1. Definition

The productive program is a group of education and training courses that function to equip students to have work competencies according to the Indonesian National Work Competency Standards (SKKNI). In the event that the SKKNI does not yet exist, competency standards agreed upon by the forum which are considered to represent the business world / industry or professional association are used. Productive programs serve the demands of the labor market, therefore more determined by the business / industry or professional associations. Productive programs are taught specifically according to the needs

of each skill program. For the Competency of Light Vehicle Engineering Expertise the subject group consists of Automotive Engineering Pictures, Basic Automotive Technology, Basic Automotive Work, Maintenance of Light Vehicle Engines, Chassis Maintenance and Light Vehicle Power Transfer,

2. Maintenance of Light Vehicle Engines

In light vehicle engineering competency, it is divided into several groups of subjects consisting of Chassis Maintenance and Light Vehicle Power Transfer, Electrical Maintenance for Light Vehicles, Maintenance of Light Vehicle Engines. The material learned on the maintenance of light vehicle engines includes core competencies. The core competencies are maintaining / servicing and repairing the system, among others: servicing the engine and its components. covers about engine service materials and components such as checking and repairing engines or engines, often referred to as tune-ups in light vehicles and overhouls in light vehicle engines. cooling system and its components. Learn about the engine cooling system of various cooling systems and those that are often used in light vehicles such as water coolers used in cars. Learn about conventional gasoline fuel systems using carburetors and EFI systems as well as conventional and common rail Diesel fuel systems. Repairing the engine and its components learn about repairing the engine system or engine management system from a variety of conventional engines to EFI for conventional gasoline and diesel and common rail diesel.

E. Research Evaluation

1. Definition of Evaluation

Evaluation is a combination of 2 things, namely measurement and assessment. According to Arikunto (2007), it is explained that measurement is an activity of comparing something using certain quantitative units of measure and the results emphasize more in numerical or numeric form. Meanwhile, according to Arikunto (2009), assessment is taking a decision on something with a good or bad measure, the assessment is qualitative. Evaluation is a systematic and continuous process for collecting, presenting and describing information about

a program as a basis for decision making, formulating a policy or compiling a program for the next (Widoyoko, 2012). As previously explained, evaluation is a combination of measuring and assessing. Then evaluation is a decision making from a size comparison and based on the criteria or rules used, it functions in making decisions for the program. There are three kinds of decisions from the evaluation, namely the program is continued, the program is continued with revisions to certain components, or the program is terminated.

The purpose of learning evaluation is to determine the effectiveness and efficiency of the learning system, both related to objectives, materials, methods, media, learning resources, the environment and the assessment system itself (Arifin, 2012: 22). The evaluation function according to Scriven (1967), the difference in the evaluation function is divided into two types, namely the formative function and the summative function. The formative function is carried out if the results obtained from the evaluation results are directed to improve certain parts or most parts of the curriculum that are being developed. While the summative function is associated with inferences about the goodness of the system as a whole. This function can only be implemented if the development of the learning program is considered complete.

2. Evaluation Model

Hasan (2009) classifies the evaluation model into 2 evaluation groups, namely as follows:

a. Quantitative evaluation models include: Tyler model, Taylor theoretical model, Maguire model, Alkin system approach model, Countenance Stake model, CIPP model, microeconomic model.
b. Qualitative evaluation models include: case study models, illuminative models, responsive models.

Meanwhile, Kaufman and Thomas are in Arikunto and West Java (2007: 24) distinguishes the evaluation model into eight, namely:

a. Goal Oriented Evaluation Model, developed by Tyler
b. Goal Free Evaluation Model, developed by Scriven
c. Formative Sumative Evaluation Model, developed by Scriven

d. Countenance Evaluation Model, developed by Stake

e. Responsive Evaluation Model, developed by Stake

f. CSE-UCLA Evaluation Model, emphasizes the “when” evaluation is carried out

g. CIPP Evaluation Model, developed by Stufflebeam

h. Discrepancy Model, developed by Provus

The evaluation models obtained from several sources will be briefly described as follows:

a. Tyler model

The name of this model is taken from the name of the developer, Tyler. This model is built on two thoughts, namely: First, evaluation is shown to the behavior of students. Second, evaluation must be carried out at the initial behavior of students before carrying out learning activities and after carrying out learning activities (results). The use of the tyler model requires behavior change information before and after the learning process, or better known as the pre-test and post-test.

b. Goal-Oriented Model

This evaluation model uses general learning objectives and specific objectives as criteria for determining success. The purpose of this model is to help formulate goals and explain the relationship between goals and activities. If the formulation of learning objectives can be observed and can be measured, then learning evaluation activities will become more practical and simpler. The instrument used depends on the objectives to be measured. The results of the evaluation will describe the level of success of the learning program objectives based on specific program criteria.

c. Measurement Model

The evaluation of this model conveyed many thoughts from Thorndike and Ebel. This model focuses on measurement activities. Measurement is used to determine certain quantities (attributes) possessed by objects, people or events, in the form of certain units of measure. The object of evaluation in this

study is the behavior of students, including learning outcomes (cognitive), traits, attitudes, interests, talents, and also aspects of the student's personality.

d. Conformity model (Tyler, Carrol, and Cronbach)

According to this model, evaluation is an activity to see the suitability between the objectives and the learning outcomes that have been achieved. The results of the evaluation can be used to improve the student guidance system to provide information to those who need it. This evaluation model requires behavioral information at two stages, namely before and after the learning process.

e. Educational System Evaluation models (Stufflebeam, Scriven, Stake, and Provus)

According to this model, evaluation means comparing the performance of various dimensions (not only the results dimension) with a number of criteria, both absolute / external, the stake model focuses on two main aspects of evaluation, namely description and judgment. Description consists of two aspects, namely intents (goals) and observations (effects) or what actually happened. Meanwhile, judgment consists of two aspects, namely standards and judgment. Stake says the description is different from judgment or judging.

f. Model CIPP (Context, Input, Process, Product)

This model was developed by Stufflebeam and friends at the US Ohio State University. The CIPP model is oriented towards a decision (a Decision oriented evaluation approach structured). This model divides four types of evaluation activities, namely (1) Context evaluation to serve planning decision, (2) Input evaluation, structuring decision, (3) Process evaluation, to serve implementing decision, (4) Product evaluation, to serve recycling decision.

g. Illuminative Model (Parlet and Hamilton)

This model emphasizes more on open-ended qualitative evaluation. The purpose of evaluation is to study carefully and carefully the implementation of the learning system, the factors that influence it, the advantages and disadvantages of the system, and the influence of the system on the learning experience of students. The object of this evaluation includes the background and development of the learning system, the process of implementing the learning system, the learning outcomes of students, the difficulties experienced from planning to implementation, including the side effects of the learning system. The methods used are not standard, but are flexible and selective. Based on the objectives and evaluation approach in this model, there are three evaluation phases that must be taken, namely: observe, further inquiry, and seek to explain.

h. Responsive Model

This model emphasizes a qualitative-naturalistic approach. The purpose of evaluation is to understand all the components of a learning program from a variety of different points of view. The instruments used generally rely on direct or indirect observation with impressionistic data interpretation. The steps for evaluation activities include observation, recording interview results, collecting data, checking preliminary understanding of students and developing designs or models.

From several evaluation models previously described, the evaluation model used in this study is the Illuminative evaluation model. This study aims to determine carefully the implementation of the integrated curriculum, to what extent the ability of the cognitive aspects of students and also to determine the supporting and inhibiting factors in the implementation of the teaching factory. The illuminative evaluation model was chosen because this evaluation model is in accordance with the objectives to be carried out in this study. In addition, the use of this model is quite practical, economical and a valid and reliable instrument.

F. Supporting and inhibiting factors

Inhibiting and supporting factors are things that always exist in an activity.According to the Big Indonesian Dictionary (KBBI), factors, obstacles, and supporters have their own meanings. Factors are things that contribute to or influence the occurrence of something. Then inhibitors are defined as things that block something. Meanwhile, pushing means to strengthen something. In one activity, inhibiting and supporting factors need to be considered properly, so that existing resources can be maximized properly and minimize possible risks that occur.

Supporting and inhibiting factors in the implementation of integrated curriculum learning can be caused by many factors that exist in the learning implementation process. Maybe like several things in its implementation, among others:

1. Classroom and Workshop Conditions

   Classrooms and workshops that have complete numbers and types of equipment and in accordance with existing standards and in the industry will be an added value in the implementation of integrated curriculum learning where the more and more complete types of equipment are available, students can have the ability to use the tools. and the learning process can run well. On the other hand, if classrooms and workshops do not have complete equipment or adequate types of equipment, eating will become an obstacle and prevent students from being able to learn in accordance with existing conditions in the industry, so that it will make the implementation of integrated curriculum learning not run as it should.

2. Implementation of Learning

   If the implementation of the Integrated curriculum learning is in accordance with the planned process such as learning planning including document, syllabus, rpp etc., the learning process includes the number of lesson hours, opening activities, core activities, closing activities, and student teacher assistance, the application of 5R culture (Brief, Neat, Clean, Careful, and Diligent) must be applied properly in order to create a good atmosphere in the school environment, learning evaluation includes cognitive, affective, psychomotor assessments, and monitoring carried out by the school, so that the

implementation of integrated curriculum learning can run well because in the implementation of learning runs smoothly.

3. Human Resources

   If the application of integrated curriculum learning in schools has quality human resources such as good teacher education levels, teachers who have the ability to master existing practices in the industry and are of good quality, there is teacher training to increase competence, and the willingness of teachers to change / innovate, so that in its implementation the integrated curriculum learning process can run well because it is supported by adequate human resource capabilities.

4. Relations with Industry

   The implementation of integrated curriculum learning requires collaboration with industry in developing learning, such as aligning the curriculum according to industry needs, placing apprentices / internship students, and absorbing workforce from vocational graduates. With the establishment of a good relationship between schools and industry, it will lead to a transfer of knowledge and technology in the industry so that students can receive theoretical and practical knowledge according to conditions in the field. And vice versa, if there is no good relationship or cooperation between schools and industry, it will result in students who will only get practical and theoretical knowledge only limited to their competence.

Some of the factors for implementing the integrated curriculum learning that are mentioned above are only a few examples that can be supporting or inhibiting factors in the implementation of integrated curriculum learning, so to find out the factors that are supporting or inhibiting the implementation of integrated curriculum learning, it is necessary to conduct a more in-depth research study so that it can be seen in real terms the actual implementation of integrated curriculum learning in a expertise program. So that after a more in-depth research study, it can

be concluded that what factors are hindering or supporting the implementation of integrated curriculum learning.

G. Relevant Research

Relevant research related to the evaluation of the implementation of integrated learning in vocational high schools, among others:

1. Jatmoko's research (2013) entitled "The Relevance of Light Vehicle Engineering Competency Vocational High School Curriculum to the Needs of the Industrial World in Sleman Regency" concluded that (1) the relevance of the Light Vehicle Engineering Competency Vocational High School curriculum with the needs of the car service industry in Sleman Regency for the engine field is 100 %, chassis 100%, and electricity 91.67%; (2) the competencies needed by the car service industry that are not provided in the curriculum for the engine sector are 15%, chassis 4%, and electricity 0%; (3) competencies that are not needed by the car service industry but implemented in the curriculum for the engine and chassis fields at 0%, and electricity at 0.08%; (4) the competencies needed by the car service industry and in the curriculum but not implemented in SMK for the engine field are 22.88%, chassis 14.60%,
2. Suharno's (2016) research entitled "Implementation of Vocational High School (SMK) Curriculum for Crafts in the Special Region of Yogyakarta" concluded that the study had a high category, with an average of 30.59. The relationship between the curriculum and the competency assessment of 0.47 moderate level, the category of implementing the vocational high school curriculum based on creative industries. Learning media is high category, the average is 23.98. The relationship between learning media and competency rating of 0.44 moderate level, learning media is sufficient. The practical facilities for the craft craftsmanship program in vocational high schools are categorized as high, with the average practical facilities being 23.98. The relationship between means of practice and competency rating of 0.47 moderate level. Tool and material practice category high, mean 28.10, correlation level 0.47 moderate. The findings in the field where the craft practice has not been able to match the craft industry.

The learning process is categorized as high, the average is 60.18, the relationship between the learning process and the competency assessment is 0.65 the level of a strong relationship, the purpose of the teaching and learning process in SMK is to produce skilled, disciplined, honest and hard-working workforce that can produce products that are of interest by consumers.

3. Mayasari's (2014) research entitled "Evaluation of the Implementation of 2013 Curriculum for Economics Subjects in Public Senior High Schools in Sleman Regency" concluded that in the following aspects: (1) The benefits of student textbooks and teacher manuals have not been felt and curriculum 2013 training for teachers has not been implemented; (2) Learning management and student services were well implemented, with the average score of 3.67 and 3.49 respectively; (3) The learning process and the assessment process were carried out well, with the average score of 3.64 and 3.62 respectively; (4) The average final score of odd semester students has reached 79, while the specified KKM is 75; (5) Constraints faced during the implementation of the 2013 Curriculum; a) SMA Negeri 1 Prambanan: the specialization program has not yet been implemented, there are no definite regulations regarding teachers whose subjects are not listed in the 2013 Curriculum, and teachers feel confused in designing correct learning; b) SMA Negeri 1 Godean: the specialization program has not been running, some students are not yet active in participating in learning, and teachers feel confused in designing the right lesson; c) SMA Negeri 1 Sleman: the specialization program has not yet been implemented, the teacher has not mastered IT, the regulations regarding the 2013 Curriculum are still changing, and the teacher is confused in designing the right lesson.

H. Framework of Mind

The entry of the 4.0 industrial revolution that occurred in developed and developing countries, made the Indonesian government make a roadmap making Indonesia 4.0 as a strategy in facing that era. In accordance with Presidential Instruction (Inpres) Number 9 of 2016, regarding the implementation of the

revitalization of the SMK program to improve the quality of Human Resources for SMK graduates.

One form of revitalization is to align the 2013 curriculum with the needs of the industry and produce an industry-based curriculum. The implementation of the curriculum resulted from the alignment at SMKN 2 Surabaya is called the integrated curriculum. The integrated curriculum is a curriculum that is implemented in schools according to industrial needs through the flow or process of aligning the curriculum between the 2013 curriculum and the additional needs of the industry.

and also the supporting factors in the implementation of integrated curriculum learning are greater than the inhibiting factors for the implementation of teaching factory. So to prove this hypothesis, the researchers conducted evaluation research to find out whether the implementation of integrated curriculum learning at SMKN 2 Surabaya in the light vehicle engineering study program was in accordance with the initial presuppositions made by the researcher and also to find out things that were not previously known.

Given that in running the integrated curriculum, it is necessary to manage the implementation of the integrated curriculum, especially in terms of managing the implementation of curriculum learning and curriculum learning outcomes. Both of these have a very important influence in the implementation of the integrated curriculum, to get a good implementation of the integrated curriculum it is necessary to take action. Therefore, in the management of the implementation of the integrated curriculum, it is necessary to evaluate whether the implementation of the integrated curriculum that has been implemented is going well or not and also to find out the advantages and disadvantages of implementing the integrated curriculum at SMKN 2 Surabaya.

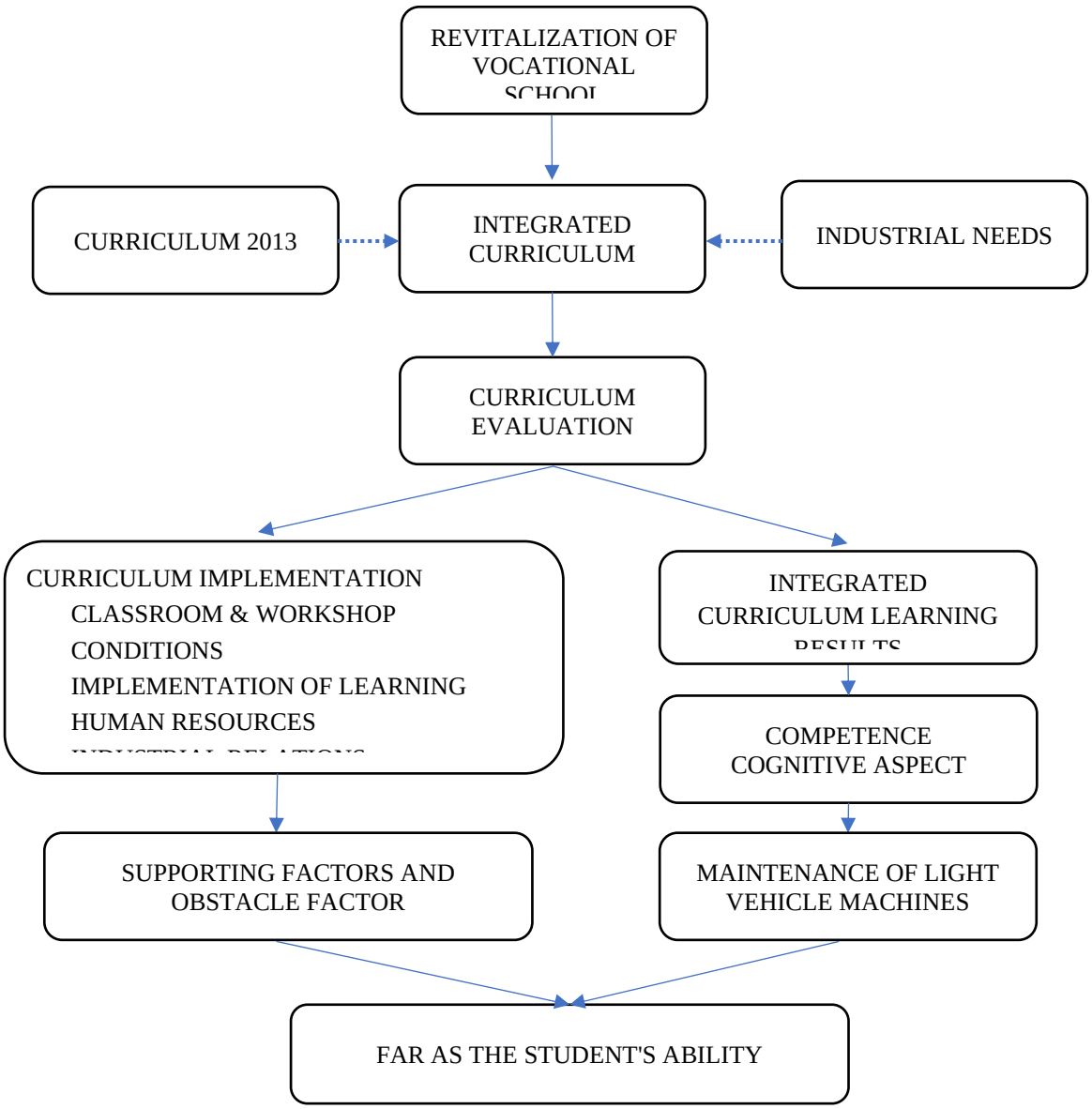

Figure 2.4 Research Framework

CHAPTER III

MRESEARCH ETODE

A. Research Type and Design

This type of research used in this research is descriptive research. The choice of this type of research is because the data obtained from a sample of the research population is then processed using simple statistical analysis and the results will be presented or concluded descriptively.

The approach used in this research is to use a mixed approach, namely using quantitative and qualitative approaches. The designs used in this study are as follows:

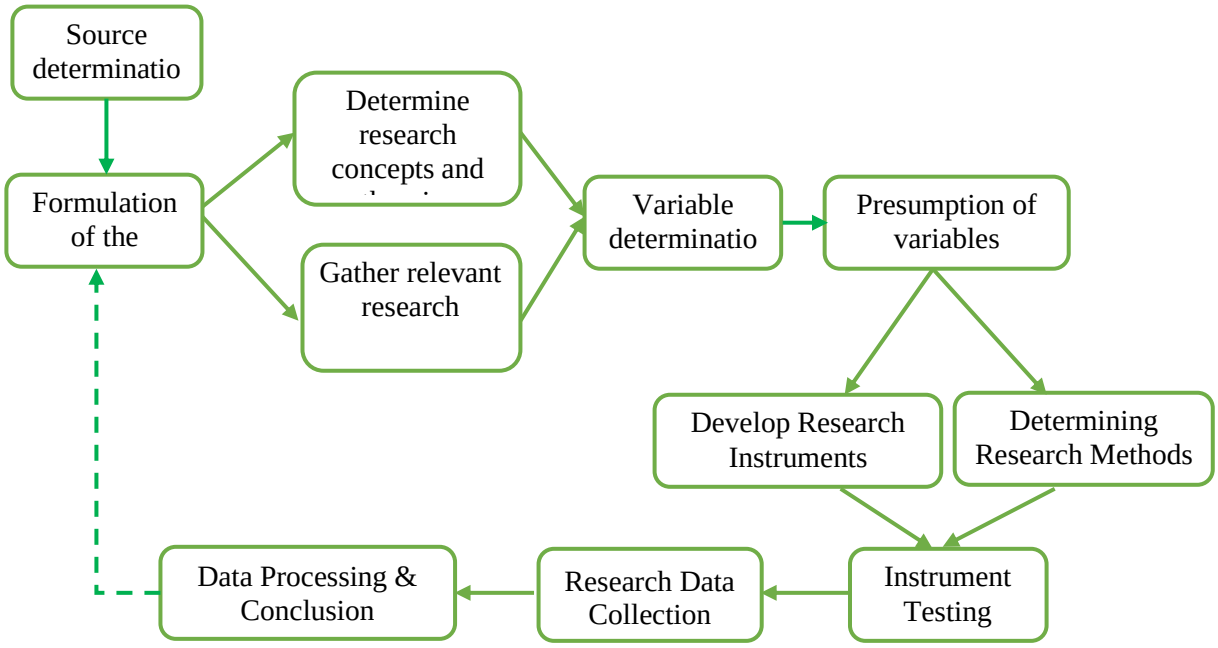

Figure 3.1 Research design

B. Location and Time of Research

The location of the research was conducted at SMK Negeri 2 Surabaya at Jalan Tentara Genie Pelajar No. 26, Petemon, Kec. Sawahan, City of Surabaya, East Java. SMK Negeri 2 Surabaya received a SMK revitalization from the government, one of which is the alignment of the curriculum in the Light Vehicle Engineering Expertise Program. The time for conducting this research is in February 2020 or after the research instrument has been validated.

Table 3.1 Research Time

No.	Activities	Execution time																			
		September				October				November				December				January			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
1	Submission of titles																				
2	Initial survey																				
3	Preparation of a thesis proposal																				
4	Arrangement of instruments																				
5	Proposal seminar																				
6	Testing the validity and reliability of the instrument																				
7	Data collection																				
8	Data analysis																				
9	Thesis Defence																				
10	Thesis improvement																				
11	Thesis duplication																				

C. Population and Sample Research

1. Research Population

The population to be taken in the study were all managers or teachers and students of class XII who were involved in the implementation of the integrated curriculum program in the Light Vehicle Engineering Skills Program at SMKN 2 Surabaya.

2. Research Sample

The sampling technique used was saturated sampling for the population of respondents to the questionnaire and interview instruments, where all members involved in the management and implementation of the integrated curriculum were taken for data, including curriculum time, public relations time, facilities and infrastructure time, head of expertise program, teachers. productive as many as 3 people. While the population of the test instrument respondents from class XII students, determining the number of samples from the population using simple random sampling, from the total population of students in class XII TKR 59 students, a total sample of 44 students was taken. From the sample taken, data can be obtained from the integrated curriculum manager according to the researcher's needs.

D. Variables and Operational Definitions

The variable in this study is the implementation of integrated curriculum learning, with sub variables, namely the test results of students' mastery of the cognitive aspects of light vehicle engine maintenance. From these sub variables, it is then used as a research instrument to evaluate the implementation of the integrated curriculum in the light vehicle engineering expertise program at SMK Negeri 2 Surabaya.

The operational definition is as follows:

1. Evaluation

   Evaluation functions to measure and assess a program for the development of further program strategies to achieve objectives. The evaluation model used is the illuminative model. This evaluation uses instruments in the form of a questionnaire, interview guidelines and test questions.

2. Implementation of the integrated curriculum

   The integrated curriculum is the curriculum from the school (the 2013 revised curriculum in 2018) which has been carried out by the synchronization process with the industrial world (Daihatsu) with the addition of competencies according to industry needs. Implementation is a process in implementing an integrated curriculum so that the application in learning can run with its objectives. The implementation of integrated curriculum learning is measured by variable student test results in cognitive aspects, conditions of classrooms and workshops, implementation of learning, human resources, and relations with industry. To measure everything used instruments in the form of test questions, questionnaires and interviews.

3. Supporting factors

   Fulfilling the criteria according to the reference will be a supporting factor in the integrated curriculum program. Fulfilling the criteria will accelerate the achievement of program objectives and be able to improve the quality of the

program being implemented. To find out what supporting factors are selected interview instruments and questionnaire instruments that can provide more data or information directly which is shown to the integrated curriculum manager.

4. Obstacle factor

Inhibiting factors in the program can be in the form of lack of management or lack of fulfillment of needs in the program or impacts from the environment. Inhibiting factors can affect the achievement of objectives or the criteria are not suitable with the field. Interview instruments and questionnaire instruments were chosen to make it easier to retrieve data directly from the integrated curriculum manager.

E. Research Instruments

To obtain research data and research results expected by the researcher, in this study, several instruments were used to support the search for research data, these instruments included:

1. Integrated Curriculum Implementation Questionnaire

The integrated curriculum implementation questionnaire was used to find out how the implementation of integrated curriculum learning at SMKN 2 Surabaya. The questionnaire is addressed to teachers and managers involved in implementing the integrated curriculum. This questionnaire was prepared based on the Permendikbud's guidelines for curriculum evaluation. In addition, the questionnaire in the study was used to describe the implementation of the integrated curriculum from the aspect of curriculum implementation including the conditions of classrooms and workshops, the implementation of learning, human resources, and the relationship with industry in implementing the integrated curriculum.

The lattice for the integrated curriculum implementation questionnaire instruments include:

Table 3.2. Integrated curriculum implementation questionnaire grid

No.	Variable	Sub Variable	Indicator	Number of Btr	Item number
1	Classroom and Workshop Conditions	Classroom	The availability of a comfortable place to study for theoretical material learning	2	1,2
		Workshop	The availability of a comfortable place for learning practicum material	2	3, 4
		Practical Equipment and Media	Availability of equipment and adequate practice media for learning	3	5, 6, 7
		Application of K3	There is adequate K3 (safety, comfort and health) coverage	3	8, 9, 10
2	Implementation of Learning	Materials and Equipment (Learning Media)	Materials and equipment applied to students following KIKD (Core Competencies Basic Competencies)	2	1, 2
		Teaching Preparation	Sufficient pre-teaching preparation supports teacher readiness when facing students in class	2	3, 4
		Learning process	Perform opening, core and closing activities	3	5, 6, 7
		Time	Requires different strategies in the learning process in the morning, afternoon, and evening	3	8, 9, 10
		Learning Evaluation	There is an assessment of learning outcomes and remedials for students	2	11, 12
3	HR	Teacher Competence	Teachers have at least a bachelor's degree (one) and have industry experience	2	1, 2
		Amount and suitability HR	Have a sufficient number of human resources and have quality in implementing	2	3, 4

No.	Variable	Sub Variable	Indicator	Number of Btr	Item number
			integrated curriculum learning		
		Teacher motivation to innovate	Have high motivation in implementing integrated curriculum learning	2	5, 6
		Accompaniment	Have the ability to assist students in the learning process	3	7, 8
		Teacher training	Apprentice teacher program in Industry		9, 10
4	Relations with Industry	Curriculum Alignment	Implementation of curricum alignment with industry	2	1, 2
		Fieldwork Practices	Placement of internship students in the cooperation industry	2	3, 4
		Technology Transfer	There is a transfer of technology and industrial culture in the school environment	2	5, 6
		Absorption of Work	Industry conducts open recruitment in schools	2	7, 8

2. Interview Instruments

In collecting data using the interview method, it is intended to complement or improve information to obtain more data related to the implementation, inhibiting and supporting factors in the implementation of integrated curriculum learning. By conducting interviews with sources, the required data will be more complete.

The instruments in the implementation of the interview stage are as follows:

Table 3.3 Grid of interview instruments

No.	Indicator	Number of Grains	Item Number
1	Understanding of the Integrated Curriculum	4	1, 2, 3, 4

No.	Indicator	Number of Grains	Item Number
2	Monitoring the implementation of the Integrated Curriculum	3	5, 6, 7
3	Implementation of Learning	6	8, 9, 25, 26, 27,28
4	Preparation of facilities and infrastructure	6	10, 11, 12, 13, 14, 15
5	Cooperation with Industry	5	16, 17, 18, 19, 20
6	Implementation of Industrial culture	4	21, 22, 23, 24
7	Barriers to learning implementation	6	29, 30, 31, 32, 33, 34

3. Test Instruments

Tests in the implementation of the integrated curriculum are used to determine the extent to which students' mastery of the cognitive aspects of light vehicle engine maintenance subjects according to the integrated curriculum. The test is aimed at students who have received integrated curriculum learning. The test form uses multiple choice with five answer choices.

Prior to the preparation of the question test instrument, the integrated curriculum was conducted a validation process in the industrial world / brand holder sole agent (ATPM) so that the competencies in the integrated curriculum were in accordance with the needs of the industrial world at large. The results of the validation of the integrated curriculum in the industrial world are as follows.

Table 3.4 Results of Integrated Curriculum Validation at the Workshop

Car Workshop	Amount	Maximum Number
TOYOTA	15	15
DAIHATSU	15	15
SUZUKI	15	15
HONDA	11	15
MITSUBISHI	12	15
Amount	68	75
Percentage %	91%	

Based on the results of the validation data that has been obtained, the percentage of competency suitability in the integrated curriculum with the

needs of the industrial world is 91%, where at Honda and Mitsubishi workshops no longer use conventional fuel / carburetor systems, and in Honda cars that enter Indonesia there is no diesel type. , while Mitsubishi is no longer using in-line and rotary pump type diesel engines. From the validation results there are also some input from the industry for the competencies needed by SMK graduates, such as team work material, basic material for technician work, for example PDI (Pre Delevery Inspection), introduction to quick service / MQP, and competencies that follow developmental technology. the automotive world, such as FCM, UMS, HAS, electric cars, and others.The lattice for the integrated curriculum implementation test instruments, among others:

Table 3.5 Test instrument grid

No.	Basic competencies	Indicators of Competence Achievement	Number of Grains	No. Question
1.	▪ Apply the main engine maintenance system and valve mechanism (conventional engine and Efi VVTi) ▪ Periodically maintaining the main engine system and valve mechanisms (conventional engines and Efi VVTi)	1. Understand and explain the main engine system components and valve mechanisms 2. Explain the purpose of periodic maintenance according to the SOP 3. Understand, implement and periodically maintain the main engine system and valve mechanisms	2 2 2	5, 6 2, 4 1, 3
2	▪ Apply the maintenance of the lubrication system (conventional engines and Efi VVTi) ▪ Regularly maintaining the lubrication system (conventional engines and Efi VVTi)	1. Understand and explain the maintenance functions of the lubrication system 2. Determine, implement and periodically maintain a lubrication system	2 2	7, 10 8, 9
3	▪ Apply cooling system maintenance methods (conventional engines and Efi VVTi) ▪ Regularly maintaining the cooling system (conventional engines and Efi VVTi)	1. Explain and understand the cooling system maintenance function 2. Defining, implementing and maintaining refrigeration systems	2 2	11,12 13.14

No.	Basic competencies	Indicators of Competence Achievement	Number of Grains	No. Question
4	▪ Implementing conventional gasoline / carburetor fuel system maintenance methods ▪ Regularly maintaining conventional gasoline / carburetor fuel systems	1. Describe the function of the gasoline fuel system on the motor (engine) 2. Describe the functions of the components of the gasoline fuel delivery system 3. Describe the names and functions of the carburetor components 4. Check and maintain the gasoline fuel delivery system 5. Periodically check and maintain conventional gasoline fuel systems	2 2 2 2 2	15, 18 17, 23 20, 24 19, 22 18, 21
5	▪ Applying the maintenance of the fuel injection system (Electronic Fuel Injection / EFI) ▪ Regularly maintaining the fuel injection system (Electronic Fuel Injection / EFI)	1. Describes the function of the fuel injected gasoline system (EFI) 2. Describes the names and functions of the fuel injection fuel system (EFI) components. 3. Regularly maintaining the fuel injection system (EFI)	2 2 2	25, 26 27, 28 29, 30
6	▪ Understanding the Quality Control System Circle (QCC) in the School Environment ▪ Implementing Quality Control System Circle (QCC) in the School Environment	1. Describe and understand the objectives of the Quality Control System Circle (QCC) 2. Implementing the Quality Control System Circle (QCC)	2 2	31, 32 33, 34
7	▪ Understand Periodic Care up to CH 20,000 KM ▪ Perform Periodic Maintenance up to CH 20,000 KM	1. Understand the purpose of periodic maintenance up to CH 20,000 KM 2. Know the procedure and perform Periodic Care up to CH 20,000 KM	2 2	35, 36 37, 38
8	▪ Implementing the Maintenance Engine Management System (EMS) method ▪ Regularly maintaining the Engine Management System (EMS)	1. Explain and understand how to Maintenance Engine Management System 2. Implementing and maintaining an Engine Management System	2 2	39, 41 40, 42
9	▪ Understand Using EFI Scanners ▪ Doing Using EFI Scanner	1. Explain and understand the purpose of using the EFI Scanner 2. Know the inspection procedure using the EFI Scanner	2 2	43, 46 44, 45
10	▪ Apply In-Line injection pump diesel fuel system maintenance methods	1. Understand how to maintain the In-Line injection pump diesel fuel system	2 2	47, 48 49, 50

No.	Basic competencies	Indicators of Competence Achievement	Number of Grains	No. Questio
	▪ Periodic maintenance of In-Line diesel fuel injection pump system	2. Maintain in-line diesel fuel injection pump system		
11	▪ Applying the way of caring for the rotary injection pump diesel fuel system ▪ Maintain regular rotary diesel fuel injection pump system	1. Understand how to care for the Rotary injection pump diesel fuel system 2. Maintain the Diesel Fuel Injection Pump Rotary System	2 2	51, 52 3, 54
12	▪ Applying the common rail diesel fuel system maintenance methods ▪ Periodic maintenance of the Common Rail diesel fuel system	1. Understand how to maintain a Common Rail diesel fuel system 2. Maintaining common rail diesel fuel system	2 2	55, 56 57, 58
13	▪ Evaluating the results of periodic maintenance of light vehicle engines ▪ Checking the results of periodic maintenance of light vehicle engines	1. Understand, formulate and evaluate the results of periodic maintenance of light vehicle engines 2. Understand and check the results of periodic maintenance of vehicle engines	2 2	59, 60 61, 62
14	▪ Understanding One Sheet Report in the School Environment ▪ Implementing One Sheet Report in the School Environment	1. Explain and understand the meaning, purpose *One Sheet Report* 2. Identify the damage by applying One Sheet Report	2 2	63, 64 65, 66
15	▪ Understand Periodic Care to CH. 40.0000 KM ▪ Performing Periodic Maintenance up to CH. 40.0000 KM	1. Understand and know the Periodic Care procedure up to CH 40,000 KM 2. Perform Periodic Maintenance up to CH 40,000 KM	2 2	68, 69 67, 70

F. Research Instrument Test

1. Validation Test

1. Expert Validation Testing

According to Bungin (2003), the validity of the instruments used in descriptive research is the validity of the construct (construct validity) obtained by testing the validity by asking the opinions of experts (judgment expersts). The minimum number of experts used is 3 people and is in

accordance with the scope under study (Sugiyono, 2015: 177). This method is used to systematically analyze and evaluate whether the instrument items have met what is being measured. The research instrument was arranged based on the research instrument lattice design based on the content of the theory used in the study. The research instrument that has been compiled is then carried out consultations with the supervisor and some opinions of experts in their field to obtain research whether the instrument used is valid or not. Opinions from supervisors and experts are used to improve each instrument so that the instrument used is truly valid or can be said to be valid. The following equations for calculating the opinion of the experts:

$$P = x\ 100\% \frac{\sum}{\sum}$$

Where:

P : Score percentage

∑x : The sum of the scores from one questionnaire

∑xi : The maximum number of one questionnaire

Table 3.6 Overview of calculating the equations of the three experts

Name	Item				X	Xi
	1	2	3	4		
Expert (1)						
Expert (2)						
Expert (3)						
∑					∑x	∑xi

Table 3.7 Criteria for Questionnaire Rating Scale

Value Scale (%)	Level of Validity
85.01 - 100	Very valid, can be used without revision
70.01 - 85.00	Valid, usable but needs minor revisions
50.01 - 70.00	Less valid, can be used but needs major revision
01.00 - 50.00	Invalid, may not be used

Source: Sugiyono, 2015

2. Instrument Validity Testing

The main characteristic of the evaluation instrument is whether or not it is valid (validity) of the research instrument used. According to Scaria B.

Anderson in Arikunto (2013: 80) "a test is said to be valid if the test measures what it wants to measure". The validity test is conducted to find out how well the instrument is used to measure the concepts that should be measured. The formula used to test the validity of this instrument is Karl Pearson's product moment, as follows:

$$= \frac{\sum \quad -(\sum \ )(\sum \ )}{\sqrt{\{ \quad ^2-(\sum \ )^2\{ \ \sum \ ^2-(\sum \ )^2\}}}$$

Information:

= correlation coefficient between x and y variables

N = number of grains

X = grain score

Y = total score

After the validity coefficient value of each item is obtained then the results are compared with the r table value as follows:

Table 3.8 Value of r Table

The value of r	Interpretation
0.81 - 1.00	Very high
0.61 - 0.80	High
0.41 - 0.60	Enough
0.21 - 0.40	Low
0.00 - 0.20	Very low

Arikunto, 2007

To determine whether the instrument is valid or not is to compare the results obtained with table r with the following conditions:

a. If r count ≥ r table with a significant level of 0.40, then the instrument is said to be valid
b. If r count ≤ r table with a significant level of 0.40, then the instrument is said to be invalid

2. Reliability Test

Sugiyono (2016) explains that a reliable instrument is an instrument that, when used several times to measure the same object, will produce the same data. To test the reliability of the instrument in this study using the

Cronbach Alpha formula because the assessment score used in the research instrument is not a scale of 1 and 0 but a scale of 1 to 4. The Cronbach Alpha formula is used to find the reliability of research instruments whose scores are not 1 and 0, for example a questionnaire or a description form.

The Alpha Cronbach formula in question is:

$$_{11} = [\frac{}{-1}] [1 - \frac{\sum\sigma^2}{\sigma^2}]$$

Information:

r11: Instrument Reliability

k: Number of questions / many questions

1: Constant number

$\sum\sigma^2$: The number of grain variances

σ^2: Total variance

After obtaining the results of the analysis seen from the reliability of the questions, the results of the reliability calculations were consulted in the interpretation of the reliability values as shown in table 3.4. To determine whether the instrument is reliable or not by looking at the table count comparison with an error rate of 5% and 1%. If r count is greater than r table, it can be concluded that the instrument is reliable and can be used in research

3. Question Item Analysis

The data collected from the test results of students' cognitive abilities were analyzed descriptively quantitatively. Data analysis techniques were carried out on test item items on the basic competencies of light vehicle engine maintenance subjects in class XI of light vehicle engineering skills competency by calculating validity, reliability, and item analysis covering the level of difficulty, distinguishing power, and distractor effectiveness. Each of these criteria is calculated using computer assistance through the 2016 Microsoft Excel program. Item analysis aims to identify good, bad, and bad questions. By analyzing the items, information about the ugliness of a question can be obtained and “directions” for making improvements (Arikunto, 2007: 222).

a. Level of Difficulty

A good question is one that is not too easy or too difficult. Problems that are too easy do not stimulate students to enhance efforts to solve them. On the other hand, questions that are too difficult will cause students to become discouraged and have no enthusiasm to try again, because they are out of reach (Arikunto, 2013: 207).

$$P = —$$

(Arikunto 2013: 223)

Information :

P = difficulty index

B = the number of students who answered the questions correctly

Js = the total number of students taking the test

The number that shows the difficulty and ease of a problem is called the difficulty index. The magnitude of the difficulty index is between 0.00 and 1.0. This difficulty index shows the level of difficulty of the question. A problem with a difficulty index of 0.0 indicates that it is too difficult, on the other hand an index of 1.0 indicates that it is too easy.

Sudjana (2004) argues that the ratio of good questions for the criteria for easy, medium, and difficult questions is 3: 4: 3. AThe classification of the difficulty index that is often used is as follows:

Table 3.9 Criteria for Interpretation of Problem Difficulty Index

Item Difficulty Index (P)	Interpretation of Question Points
0.00 <P <0.30	Difficult problem
0.31 <P <0.70	Medium problem
0.71 <P <1.00	Easy problem

(Arikunto, 2013: 225)

b. Discernment

Arikunto (2013: 226) Distinguishing power is the ability of a question to differentiate between students who have high abilities and students with low abilities. The number that shows the amount of discriminating power is called the discrimination index or abbreviated as D (large d).

A question is said to have no distinguishing power if it can be answered correctly by smart students and students with low achievement. Likewise, if all students, both those who are smart and those who have low learning achievement, cannot answer the questions correctly, then the question is also said to have no distinctive power.

D = - = - — —

(Arikunto 2013: 228)

Information :

D = discriminating power index

JA = number of participants in the top group

JB = number of participants in the lower group

BA = the number of participants in the top group who answered correctly

BB = the number of participants in the lower group who answered correctly

PA = proportion of the upper group who answered correctly (P = difficulty index)

PB = proportion of the lower group who answered correctly (P = difficulty index)

The classification of the interpretation of the distinguishing power can be seen in the table below:

Table 3.19 Classification of Distinguishing Power

Distinguishing Power Index (D)	Interpretation of the Difference of Question Items
0.00 <D <0.20	Ugly (poor)
0.21 <D <0.40	Enough (stistifactory)
0.41 <D <0.70	Good (good)
0.71 <D <1.00	Very good (exellent)

(Arikunto, 2013: 232)

Good items are items that have a crystallized index of 0.40. Items that have a negative discriminatory power index are not good and should not be used.

c. Distractor effectiveness

The effectiveness of distractors can be seen by looking at the distribution of students' answers. The answer distribution is obtained by counting the number of testees who chose the answer or who did not choose anything. From the pattern of distribution of answers, it can be determined whether the cheater can function or not. An item can be categorized as a good question if the distractor or distractor can function properly.

According to Anas (2012: 411) states that the cheater can carry out its function properly if at least 5% of the test takers have been selected. A trickster that has done its job well can be reused in future tests. Thus, the effectiveness of cheaters is how well the wrong choices can trick test takers who do not know the available answer keys. The more test takers who choose the cheater, the more deceitful it can carry out its function. If the test taker ignores all options (does not choose) it is called omit. In terms of omit, a test is said to be good if the turnover is not more than 10% of students.

G. Data collection technique

1. Questionnaire / Questionnaire

The technique of collecting data in the form of a questionnaire can make it easier for researchers to collect data. The questionnaire used is closed to prevent crossing the limits of the variables tested with a questionnaire scale using a scale of 1 - 4 where the answers are clearer and more detailed. The questionnaire was tested on a sample consisting of all managers and teachers involved in the integrated curriculum.

2. Interview

Data collection techniques in the form of interviews can add more information to the implementation of the integrated curriculum program. And can find out how the supporting and inhibiting factors in the integrated curriculum program. The type of interview the researcher uses is using a structured interview technique that has been compiled by the researcher in the interview instrument sheet to make it easier for researchers to obtain information. In

conducting this interview, using tools such as a tape recorder, notebook or camera to increase the smoothness of obtaining data.

3. Test

Written test is a test where the questions and answers are given to students in written form. In answering questions, students do not always respond in the form of writing answers but can also be in other forms such as marking, coloring, drawing, and so on. Problems with selecting the answer (selected response), include: multiple choice, true-false, and matchmaking. This test is used to determine the ability of TKR class XII students on the Maintenance of Light Vehicle Machinery. The written test is prepared based on indicators of learning achievement in the form of cognitive tests. The objective test is given in the form of multiple choice questions with a total of five answer options.

H. Data analysis technique

1. Questionnaire / Questionnaire Data Analysis

The data analysis technique of this research is to analyze the data from questionnaires and test results. The data that has been collected in the study are then processed using the average results obtained from the research results.

In this study the data were analyzed using descriptive analysis, descriptive analysis techniques are data analysis used by researchers who only want to describe the sample data, and do not want to make conclusions that apply to the population where the sample is drawn. Researchers used descriptive analysis because researchers only wanted to measure the extent to which the implementation of integrated curriculum learning at SMK Negeri 2 Surabaya was focused on teachers who manage or implement integrated curriculum learning and to class XII students. Analysis is used to calculate the mean, median, mode, and standard deviation. The calculation of the average uses the Mean formula as expressed by Morissan (2014: 249) as follows:

$$\bar{X} = \frac{}{}$$

Information:

= Average item score

Ex = Total number of item scores

N = Number of instrument items

The process of calculating the percentage of achievement using the formula:

Acjievement Level = ——————— 100%

Table 3.22 Category of research results

No.	Student Score	Category
1	NPK ≥ 75%	Perfectly fit
2	50% ≥ NPK ≤ 75%	Corresponding
3	25% ≥ NPK ≤ 50%	It is not in accordance with
4	NPK ≤ 25%	Very inappropriate

2. Test Result Data Analysis

This analysis is to determine the extent to which students' abilities in the cognitive aspects of light vehicle engine maintenance subjects after participating in the implementation of integrated curriculum learning carried out by the teacher. According to the guidelines at SMKN 2 Surabaya, it is explained that students are said to have completed learning, if students can answer questions from the test with a score of ≥ 75 while classical completeness is obtained if in one class there are ≥ 75% of students complete learning if it is calculated using the formula:

= ——————— %

(Mulyasa, 2004: 19)

= ——————————— %

(Depdiknas, 2003: 2)

I. Research Instrument Test Results

1. The process of preparing research instruments

The instruments of this study were compiled from references from the concept of the initial stage of the government program on the revitalization of SMK to the implementation stage of one of the programs reviewed from the curriculum aspect, namely the curriculum synchronization program, and from the curriculum evaluation guidelines. The instrument of this study was structured to obtain results that were in accordance with the conditions and conditions of the school to be researched, namely the conditions for implementing integrated curriculum learning at SMKN 2 Surabaya.

In this research instrument, the research variable focuses on the implementation of the integrated curriculum on student test results in the cognitive aspects, supporting and inhibiting factors for the implementation of integrated curriculum learning on aspects of classroom and workshop conditions, learning implementation, human resources, and relations with industry.

2. Expert validation of research instruments

From the results of the preparation of the research instruments that have been carried out, then the validation process is carried out, which in the validation process aims to obtain a research instrument that is valid and suitable for use in collecting research data. Validation is carried out using the construct validation method, namely the validation process that uses the assistance of experts to provide an assessment of the research instrument to be used. Aspects of validation that are carried out are validation of items, validation of questionnaires and interviews. From each aspect, three validators will be used who will be asked to provide an assessment of the research instrument. The validators are:

Table 3.11 List of Research Instrument Validators

Validation Field	Validator	Agency
Questionnaires and Interviews	Dr. Yunus, M.Pd.	F. UNESA Engineering
	Dr. Mochamad Cholik, M.Pd.	F. UNESA Engineering
	Drs. Sutardi	SMKN 2 SURABAYA

Validation Field	Validator	Agency
Item Questions	Dr. I Made Arsana, S.Pd., MT	F. UNESA Engineering
	Dr. Warju, S.Pd., ST, MT	F. UNESA Engineering
	Drs. Sutardi	SMKN 2 SURABAYA

From the results of the validation of the items carried out by the three validators above, there are several points that need to be improved. The points include:

1. Adjust the questions according to the alternative answers provided.
2. Don't make up questions that interpret the answers
3. Do not provide alternative answers that are easy to guess right / wrong
4. It is necessary to pay attention to the use of words / sentences in accordance with the enhanced spelling rules (EYD).

Based on several points of input from the validator, it can be concluded that the research instrument is good and can be used with a few revisions / improvements.

Meanwhile, the validation of the questionnaire and interviews conducted by the three validators above found several points that needed improvement.

1. Some instrument statements are not easy to understand and there are typos.
2. There needs to be a revision of the writing according to the EYD, eliminating the abbreviation "etc", the use of the preposition "di" must be appropriate.
3. Instruments must be measurable and fit for purpose.
4. Constructing a more effective sentence and one statement measuring one aspect
5. The statement must be sharpened (specific) so that there is no confusion in meaning.

From several points of advice given by the validators, the research instrument needs to be improved according to the input. So it can be concluded that the research instrument is very good and can be used with a few revisions / improvements.

Table 3.12 Results of the Calculation of Problem Test Instruments by the Validator

Validator	Quantity	Maximum Number
Expert 1	207	280
Expert 2	254	280
Expert 3	265	280
Amount	726	840
Percent	86%	

From the calculation of the test question instrument by the validator, the percentage result was 86%. In accordance with Table 3.7 CriteriaThe Questionnaire Rating Scale states that the question test instrument is said to be very valid, so it can be used but with a few revisions and improvements.

Table 3.13 Results of the Calculation of the Questionnaire Instrument by the Validator

Validator	Quantity	Maximum Number
Expert 1	139	160
Expert 2	138	160
Expert 3	136	160
Amount	413	480
Percent	86%	

From the calculation of the questionnaire instrument by the validator, the percentage was 86%. In accordance with Table 3.7 Criteria for the Questionnaire Rating Scale states that the questionnaire instrument is said to be very valid, so it can be used but with a few revisions to improvements.

Table 3.14 Results of the Calculation of Interview Instruments by the Validator

Validator	Quantity	Maximum Number
Expert 1	121	136
Expert 2	113	136
Expert 3	125	136
Amount	359	136
Percent	88%	

From the calculation of the interview instrument by the validator, the result is a percentage of 88%. In accordance with Table 3.7 Criteria for the Assessment Scale, the questionnaire states that the interview instrument is said to be very valid, so it can be used but with a few revisions.

3. Test the validity of the items

The item validity test was carried out on the research instrument in the form of a questionnaire and test questions, this test was conducted to determine the validity of each item of the research instrument to be used in collecting research data. This test is carried out after the respondent has filled in the questionnaire and test questions. After obtaining the results, the next step is to test the validity of the items using Microsoft Excel software.

The results of the validity test of the questionnaire instrument items and test questions are as follows:

Table 3.15 Calculation of the Validity of the Questionnaire Instrument Items

Item Number	Validitas	Description	Item Number	Validitas	Description	Item Number	Validitas	Description	Item Number	Validitas	Description
1	0.75	High	1	0.61	High	11	0.60	High	9	0.59	Enough
2	0.66	High	2	0.60	High	12	0.52	Enough	10	0.57	Enough
3	0.75	High	3	0.55	Enough	1	0.75	High	1	0.42	Enough
4	0.50	Enough	4	0.52	Enough	2	0.70	High	2	0.68	High
5	0.50	Enough	5	0.60	High	3	0.64	High	3	0.75	High
6	0.57	Enough	6	0.73	High	4	0.59	Enough	4	0.75	High
7	0.60	Enough	7	0.77	High	5	0.55	Enough	5	0.71	High
8	0.57	Enough	8	0.66	High	6	0.67	High	6	0.46	Enough
9	0.77	High	9	0.71	High	7	0.75	High	7	0.54	Enough
10	0.51	Enough	10	0.60	High	8	0.57	Enough	8	0.49	Enough
Amount										0.62	High

From the results of the calculation of the validity of the questionnaire instrument items by 15 respondents to 40 statement items, it was found that all the items were said to be valid, indicated by an average of 0.62 being able to achieve "High" information.

Table 3.16 Calculation of the Validity of Test Instrument Items

Question Item	Validitas	Description	Question Item	Validitas	Description	Question Item	Validitas	Description
1	0.69	High	25	0.56	Enough	49	0.52	Enough
2	0.45	Enough	26	0.57	Enough	50	0.47	Enough
3	0.51	Enough	27	0.41	Enough	51	0.48	Enough

Question Item	Validitas	Description	Question Item	Validitas	Description	Question Item	Validitas	Description
4	0.52	Enough	28	0.57	Enough	52	0.50	Enough
5	0.52	Enough	29	0.45	Enough	53	0.61	High
6	0.49	Enough	30	0.52	Enough	54	0.46	Enough
7	0.53	Enough	31	0.52	Enough	55	0.55	Enough
8	0.56	Enough	32	0.45	Enough	56	0.58	Enough
9	0.70	High	33	0.48	Enough	57	0.64	High
10	0.44	Enough	34	0.54	Enough	58	0.52	Enough
11	0.45	Enough	35	0.53	Enough	59	0.56	Enough
12	0.41	Enough	36	0.44	Enough	60	0.53	Enough
13	0.86	Very High	37	0.56	Enough	61	0.62	High
14	0.52	Enough	38	0.63	High	62	0.52	Enough
15	0.43	Enough	39	0.44	Enough	63	0.48	Enough
16	0.46	Enough	40	0.55	Enough	64	0.61	High
17	0.69	High	41	0.53	Enough	65	0.69	High
18	0.47	Enough	42	0.48	Enough	66	0.45	Enough
19	0.57	Enough	43	0.44	Enough	67	0.55	Enough
20	0.44	Enough	44	0.52	Enough	68	0.52	Enough
21	0.64	High	45	0.53	Enough	69	0.71	High
22	0.54	Enough	46	0.51	Enough	70	0.61	High
23	0.55	Enough	47	0.52	Enough	Amount	0.54	Enough
24	0.80	High	48	0.46	Enough			

From the results of the calculation of the validity of the test instrument items by 15 respondents to 70 question items, it was found that all the items were said to be valid, indicated by an average of 0.54 capable of achieving "Enough" information.

4. Reliability test

In this study, the reliability test of research instruments was also conducted to determine whether the instruments used in obtaining information can be trusted as a means of collecting data and able to reveal information in the field. Reliability test results on test questions and questionnaires / questionnairesusing Cronbach's alpha formula which the calculation is done with using Microsoft Excel, the reliability results are as follows:

Table 3.17 Questionnaire Instrument Reliability Test

K	40
K/K 1	1,03
$\frac{\Sigma\sigma_b^2}{\sigma_t^2}$	0,07
$\left[1-\frac{\Sigma\sigma_b^2}{\sigma_t^2}\right]$	0,93
Reliability	0,96
Description	Very High

From the calculation of the reliability test of the questionnaire instrument which was tested on 15 respondents of students of the S1 Mechanical Engineering Education study program - Surabaya State University on 40 statement questions, the reliability results obtained were 0.96. The instrument is said to be reliability if $_{11}$> 0.6. Because the results of the calculation of the reliability test of the questionnaire instrument obtained a value of 0.96 with very high information, so it can be concluded that the questionnaire instrument is reliable and can be used to obtain information in the field.

Table 3.18 Test Instrument Reliability Test Questions

Source of Variation	Number of Quadrants	d,E	Variation
Respondents	63,26	14	4,52
Item	13,7	69	0,20
Residual	167,4	2016	0,08
Total	244,36	2099	0,12
r11 Reliability	0,98	Very High	

From the calculation of the reliability test of the question test instrument which was tested on 15 respondents of SMKN 2 SURABAYA students to 70 items, the reliability result was 0.98. The instrument is said to be reliability if $_{11}$> 0.6. Because the results of the calculation of the reliability test of the test instrument obtained a value of 0.98 with very high information, so it can be concluded that the test instrument is reliable and can be used to obtain information in the field.

5. Question Item Analysis

a. Level of Difficulty

In this study, a test question difficulty level was also conducted to determine whether the test questions used in obtaining data were too easy or

too difficult. The result of the difficulty level test on the question test instrumentusing the difficulty index classification Table 3.4, To find out the level of difficulty of the test instrument for each question item, a respondent test was conducted on 15 students of class XII SMKN 2 SURABAYA on 70 test items. The results of the difficulty level of the test instrument are as follows:

Table 3.19 Test Problem Test Difficulty Level

Question Item	Validitas	Description	Question Item	Validitas	Description	Question Item	Validitas	Description
1	0.73	Easy	25	0.67	Moderate	49	0.60	Moderate
2	0.73	Easy	26	0.53	Moderate	50	0.60	Moderate
3	0.27	Difficult	27	0.60	Moderate	51	0.27	Difficult
4	0.27	Difficult	28	0.53	Moderate	52	0.60	Difficult
5	0.67	Moderate	29	0.60	Moderate	53	0.67	Moderate
6	0.87	Easy	30	0.67	Moderate	54	0.60	Moderate
7	0.73	Easy	31	0.60	Moderate	55	0.53	Moderate
8	0.67	Moderate	32	0.73	Moderate	56	0.67	Moderate
9	0.73	Easy	33	0.60	Moderate	57	0.53	Moderate
10	0.73	Easy	34	0.27	Difficult	58	0.27	Difficult
11	0.60	Moderate	35	0.73	Easy	59	0.80	Easy
12	0.60	Moderate	36	0.73	Easy	60	0.67	Moderate
13	0.67	Moderate	37	0.53	Moderate	61	0.53	Moderate
14	0.67	Moderate	38	0.53	Moderate	62	0.60	Moderate
15	0.53	Moderate	39	0.73	Moderate	63	0.73	Easy
16	0.20	Difficult	40	0.67	Moderate	64	0.67	Moderate
17	0.73	Easy	41	0.47	Moderate	65	0.60	Moderate
18	0.73	Easy	42	0.73	Easy	66	0.60	Moderate
19	0.80	Easy	43	0.73	Easy	67	0.67	Moderate
20	0.73	Easy	44	0.27	Difficult	68	0.67	Moderate
21	0.53	Moderate	45	0.27	Difficult	69	0.73	Easy
22	0.67	Moderate	46	0.87	Moderate	70	0.67	Moderate
23	0.53	Moderate	47	0.27	Difficult	Average	0.60	Moderate
24	0.73	Easy	48	0.60	Moderate			

From the results of the test on the level of difficulty of the question test instrument by 15 respondents to 70 questions, it was found that the comparison of the percentage of easy questions was 31%, medium questions were 55%, and difficult questions were 14%. The average level of difficulty of the test questions obtained results of 0.61 with "moderate" information.

b. Discernment

In this study, a test of the distinguishing power of questions was carried out to determine the ability of a question to distinguish between students who had high abilities and students with low abilities. The results of the distinguishing power test on the question test instrumentusing the classification Table 3.5, To determine the distinguishing power of the test instrument from each question item, the respondent's test was conducted to 15 students of class XII SMK Negeri 2 Surabaya on 70 test items. The results of the distinguishing power of the test instrument are as follows:

Table 3.20 Distinguishing Power Test of Test Instruments

Question Item	Distinguishing Power	Description	Question Item	Distinguishing Power	Description	Question Item	Distinguishing Power	Description
1	0.50	Good	25	0.36	Moderate	49	0.48	Good
2	0.50	Good	26	0.34	Moderate	50	0.48	Good
3	0.57	Good	27	0.48	Good	51	0.30	Moderate
4	0.57	Good	28	0.34	Moderate	52	0.48	Good
5	0.36	Moderate	29	0.21	Moderate	53	0.36	Moderate
6	0.25	Moderate	30	0.36	Moderate	54	0.48	Good
7	0.50	Good	31	0.48	Good	55	0.34	Moderate
8	0.36	Moderate	32	0.23	Moderate	56	0.36	Moderate
9	0.50	Good	33	0.48	Good	57	0.34	Moderate
10	0.23	Moderate	34	0.57	Good	58	0.30	Moderate
11	0.21	Moderate	35	0.50	Good	59	0.38	Moderate
12	0.48	Good	36	0.23	Moderate	60	0.36	Moderate
13	0.63	Good	37	0.34	Moderate	61	0.61	Good
14	0.36	Moderate	38	0.34	Moderate	62	0.48	Good
15	0.61	Good	39	0.23	Moderate	63	0.50	Good
16	0.43	Good	40	0.36	Moderate	64	0.36	Moderate
17	0.50	Good	41	0.46	Good	65	0.48	Good
18	0.23	Moderate	42	0.23	Moderate	66	0.48	Good
19	0.38	Moderate	43	0.23	Moderate	67	0.36	Moderate
20	0.23	Moderate	44	0.57	Good	68	0.36	Moderate
21	0.88	High	45	0.57	Good	69	0.50	Good
22	0.36	Moderate	46	0.25	Moderate	70	0.36	Moderate
23	0.34	Moderate	47	0.30	Moderate	Amount	0.41	Good
24	0.50	Good	48	0.48	Good			

From the results of the test instrument distinguishing power for all items obtained an average of 0.41 with "good" information. Based on the stipulation that good items are items that have a crystallized index of 0.40.

Items that have a negative discriminatory power index are not good and should not be used. None of the results of the distinguishing power test above are negative, so it is worth using for data collection.

c. Deceiving Effectiveness

In this study, a test for the effectiveness of question fraud was carried out, to find out how well the wrong choice could trick test participants who did not know the available answer keys. To find out the effectiveness of the test instrument distractor of each question item, the respondent's test was conducted to 15 students of class XII SMK Negeri 2 Surabaya on 70 test items. The results of the effectiveness of the test instrument cheat are as follows:

Table 3.21 Test of Confounding Factors for Test Instruments

Question Item	Confounding Function	Description	Question Item	Confounding Function	Description	Question Item	Confounding Function	Description
1	26,7	Good	25	33,3	Good	49	40,0	Good
2	26,7	Good	26	46,7	Good	50	40,0	Good
3	73,3	Good	27	40,0	Good	51	73,3	Good
4	73,3	Good	28	46,7	Good	52	40,0	Good
5	33,3	Good	29	40,0	Good	53	33,3	Good
6	13,3	Good	30	33,3	Good	54	40,0	Good
7	26,7	Good	31	40,0	Good	55	46,7	Good
8	33,3	Good	32	26,7	Good	56	33,3	Good
9	26,7	Good	33	40,0	Good	57	46,7	Good
10	26,7	Good	34	73,3	Good	58	73,3	Good
11	40,0	Good	35	26,7	Good	59	20,0	Good
12	40,0	Good	36	26,7	Good	60	33,3	Good
13	33,3	Good	37	46,7	Good	61	46,7	Good
14	33,3	Good	38	46,7	Good	62	40,0	Good
15	46,7	Good	39	26,7	Good	63	26,7	Good
16	80,0	Good	40	33,3	Good	64	33,3	Good
17	26,7	Good	41	53,3	Good	65	40,0	Good
18	26,7	Good	42	26,7	Good	66	40,0	Good
19	20,0	Good	43	26,7	Good	67	33,3	Good
20	26,7	Good	44	73,3	Good	68	33,3	Good
21	46,7	Good	45	73,3	Good	69	26,7	Good
22	33,3	Good	46	13,3	Good	70	33,3	Good
23	46,7	Good	47	73,3	Good	Average	39,5	Good
24	26,7	Good	48	40,0	Good			

From the results of the test instrument deceitful effectiveness test for all items, the percentage values were obtained in the range of 13.3 - 73.3. Based on the provisions that the cheater has been able to carry out its function properly if at least 5% of the test takers have been selected. The results of the effectiveness test above obtained an average of 39.4% with the information "good", so that overall the items met the deceiving effectiveness test,

CHAPTER IV

RESEARCH RESULTS AND DISCUSSION

A. Research Location Description

1. School identity

School name	:	SMK Negeri 2 Surabaya
School address	:	Jl. Student Genie Army No. 26 Surabaya
Tel. / Fax number.	:	031-5343708 / 031-5475376
Website	:	smkn2sby.sch.id
E-mail	:	smekda.surabaya@gmail.com

2. Vision and Mission of SMK Negeri 2 Surabaya

Vision:

To become a technology and industrial training education institution that can serve and fulfill the demands of the industrial world entering the global era.

Mission:

Forming human resources with faith to provide services to the community of the Business World and the Industrial World through technology and industrial training education with National Certification standards, oriented towards sustainable achievement and environmental sustainability.

3. SMK Negeri 2 Surabaya Expertise Program 2019 / 2020

Table 4.1 3-year study period expertise program

Expertise Program	Number of Students
Modeling Design and Building Information	108
Audio Video / Electronics Engineering	72
Installation / Electrical Engineering	72
Mechanical Engineering	72
Automotive Light Vehicle Engineering	59
Motorcycle Engineering and Business	72
Programming Engineering / Software Engineering	72
Computer and Network Engineering	36
Animations	72

Table 4.2 4-year study period expertise program

Expertise Program	Number of Students
Building Construction, Sanitation and Maintenance	36
Power Electronics and Communication Engineering	36
Electrical Power Engineering	36
Metal Fabrication and Manufacturing Engineering	36
Automotive Maintenance Engineering and Management	36
Information Systems, Networks and Applications	36

4. Curriculum Alignment Program at SMK Negeri 2 Surabaya

The Integrated Curriculum is the result of synchronizing the SMK Negeri 2 Surabaya curriculum or curriculum from the government with the industrial world from Daihatsu. Which is one of the SMK Revitalization programs through Presidential Instruction No. 9 of 2016. The synchronization program at SMK Negeri 2 Surabaya has been running in 2016 until now in the Light Vehicle Engineering expertise program.

B. Description of Research Data Results

1. Test Question Instrument Result Data

This data was obtained from the results of a 70 item test for 44 students who were taught the subject of light vehicle engine maintenance according to the integrated curriculum. The research on question test instruments aims to determine the extent to which students' mastery of the cognitive aspects in the subject of vehicle engine maintenance according to the integrated curriculum at SMK Negeri 2 Surabaya. The recap of research data is as follows:

Table 4.3 Student Test Results of SMKN 2 Surabaya

Respondents	Score	Information	Respondents	Score	Information
1	64.3	Not Completed	23	75.7	Completed
2	75.7	Completed	24	81.4	Completed
3	78.6	Completed	25	72.9	Not Completed
4	60.0	Not Completed	26	75.7	Completed
5	81.4	Completed	27	77.1	Completed
6	75.7	Completed	28	55.7	Not Completed
7	78.6	Completed	29	65.7	Not Completed
8	81.4	Completed	30	82.9	Completed
9	77.1	Completed	31	77.1	Completed
10	77.1	Completed	32	81.4	Completed
11	78.6	Completed	33	77.1	Completed
12	75.7	Completed	34	80.0	Completed
13	80.0	Completed	35	58.6	Not Completed
14	78.6	Completed	36	75.7	Completed
15	81.4	Completed	37	78.6	Completed
16	77.1	Completed	38	80.0	Completed
17	61.4	Not Completed	39	74.3	Not Completed
18	77.1	Completed	40	75.7	Completed
19	75.7	Completed	41	82.9	Completed
20	52.9	Not Completed	42	85.7	Completed
21	75.7	Completed	43	82.9	Completed
22	60.0	Not Completed	44	84.3	Completed

Number of Students		44
The completenees of the individual	Completed	34
	Not Completed	10
Clasical Completeness		77.27%
Description		Completed

From the test result data above, it can be seen that the completeness of the individuals who passed was 34 students and 10 students did not pass, so that classical completeness obtained 77.27%. According to the Ministry of National Education, 2003: 19 good classical completeness is obtained if in one class there are ≥75% of students who pass / complete the test scores. From this statement, students of SMK Negeri 2 Surabaya who were given learning with an integrated

curriculum in the light vehicle engineering expertise program were declared complete.

2. Questionnaire Instrument Results Data

This data is obtained from the results of a questionnaire given to vice principals and automotive teachers. The questionnaire has 4 variables including the conditions of classrooms and workshops, implementation of learning, human resources, relations with industry. The recap of research data is as follows:

a. The results of implementing the variable conditions for classrooms and workshops

Table 4.4 Questionnaire Results Data Variable Classroom and Workshop Conditions

Item Number	Respondents							Average
	1	2	3	4	5	6	7	
1	4	4	4	4	4	4	4	4,00
2	3	3	4	3	3	3	3	3,14
3	3	4	3	3	3	4	3	3,29
4	4	3	4	4	3	4	3	3,57
5	3	3	3	3	3	2	3	2,86
6	2	2	2	2	2	2	2	2,00
7	3	3	3	3	2	3	2	2,71
8	3	3	3	3	3	3	3	3,00
9	3	3	3	3	4	4	3	3,29
10	3	4	3	3	4	4	3	3,43
Total	31	32	32	31	31	33	29	31,29

The questionnaire instrument above contained 10 statements from 7 respondents including the vice principal and automotive teacher. From these data, calculations are carried out to find the mean, median, mode, standard deviation, highest value, and lowest value. The results of data management are as follows:

Table 4.5 Suitability of Implementation of Classroom and Workshop Condition Variables

Mean	Median	Modus	Standard Deviation	High Value	Lower Value
31.29	31	31	1,25	33	29

In the implementation of integrated curriculum learning at SMK Negeri 2 Surabaya, which is viewed from the variables of the conditions of classrooms and workshops, there are sub variables that become a measure of conformity. In the questionnaire sheet, there are statement items that discuss each of the sub-variables. The items of the sub variables are as follows:

Table 4.6 Item Variable Condition of Classroom and Workshop

Sub Variable	Item Number
Classroom	1,2
Workshop	3,4
Equipment and Practice Media	5,6,7
Application K3	8,9,10

The percentage value of each item variable for the classroom and workshop conditions of the questionnaire instrument is presented in the following graph:

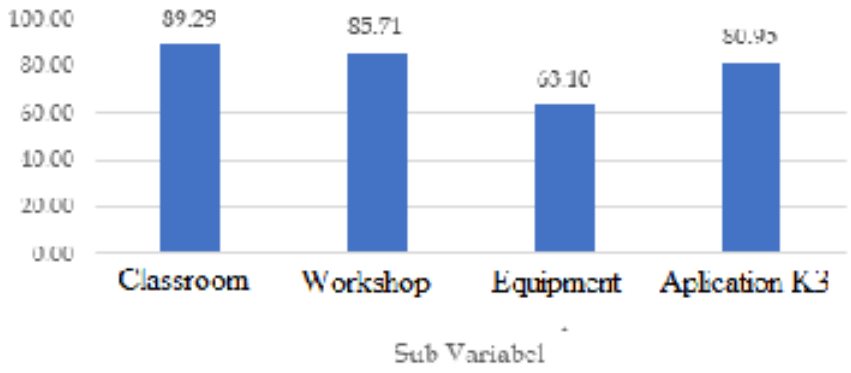

Figure 4.1 Variable Graph of Classroom and Workshop Conditions

The value of achieving the quality of the implementation of the integrated curriculum at SMK Negeri 2 Surabaya which is viewed from the variable conditions of classrooms and workshops with respondents as deputy principal and automotive teachers can be seen in the following table

Table 4.7 Value of Quality Achievement of Variable Condition of Classrooms and Workshops

Number of respondent	Number of Question	Total Score	NPK(%)	Description
7	10	219	78,21	Very suitable

From the data above, it can be seen that the implementation of the integrated curriculum at SMK Negeri 2 Surabaya which is viewed from the variable conditions of classrooms and workshops using the respondent's deputy principal and automotive teachers obtained a quality achievement score of 78.21% so that the categories of research results get very appropriate information. .

b. The results of the implementation of the learning implementation variable

Table 4.8 Data on the Results of the Learning Implementation Variable Questionnaire

Item Number	Respondent							Average
	1	2	3	4	5	6	7	
1	3	3	4	4	4	3	3	3,43
2	3	3	4	3	4	3	4	3,43
3	3	3	3	3	3	3	3	3,00
4	2	2	1	3	2	2	2	2,00
5	3	4	3	4	3	4	3	3,43
6	4	4	3	4	4	4	4	3,86
7	2	2	3	1	2	2	2	2,00
8	3	3	3	3	3	3	3	3,00
9	2	3	3	2	3	3	2	2,57
10	3	2	3	3	3	3	3	2,86
11	3	4	3	3	4	3	3	3,29
12	4	4	3	3	4	3	3	3,43
Total	35	37	36	36	39	36	35	36,29

The questionnaire instrument above contained 12 statement items from 7 respondents including the vice principal and automotive teacher. From these data, calculations are carried out to find the mean, median, mode, standard deviation, highest value, and lowest value. The results of data management are as follows:

Table 4.9 Suitability of the Implementation of Learning Implementation Variables

Mean	Median	Modus	Standard Deviation	High Value	Lower Value
36.29	36	36	1.38	39	35

In the implementation of integrated curriculum learning at SMK Negeri 2 Surabaya which is viewed from the learning implementation variable, there are sub-variables that become a measure of conformity. In the questionnaire sheet, there are statement items that discuss each of the sub-variables. The items of the sub variables are as follows:

Table 4.10 Item Items of Learning Implementation Variables

Sub Variable	Item Number
Learning Media	1,2
Teaching Preparation	3,4
Teaching Process	5,6,7
Time	8,9,10
Teaching Evaluation	11,12

The percentage value of each item variable for the classroom and workshop conditions of the questionnaire instrument is presented in the following graph:

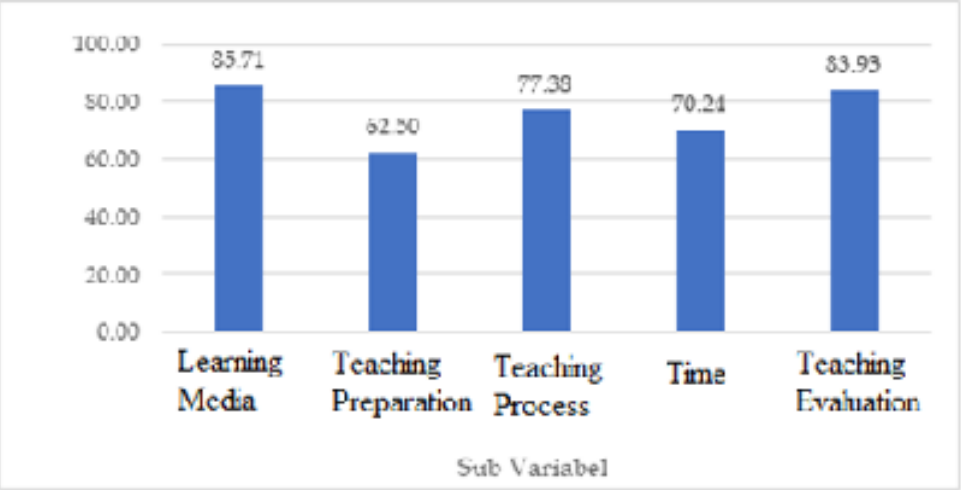

Figure 4.2Learning Implementation Variable Graph

The value of achieving the quality of the implementation of the integrated curriculum at SMK Negeri 2 Surabaya which is viewed from the learning implementation variable with the respondent's vice principal and automotive teacher can be seen from the following table:

Table 4.11 Value of Quality Achievement of Variable Conditions of Classrooms and Workshops

Number of respondent	Number of Question	Total Score	NPK(%)	Description
7	12	254	75,60	Very suitable

From the data above, it can be seen that the implementation of the integrated curriculum at SMKN 2 Surabaya which is viewed from the learning implementation variable using the respondent's deputy principal and automotive teachers obtained a quality achievement score of 75.60% so that the categories of research results get very appropriate information.

c. The results of the implementation of the human resource (HR) variable

Table 4:12 Data on Human Resources Variable Questionnaire Results

Item Number	Respondent							Average
	1	2	3	4	5	6	7	
1	3	3	3	3	2	3	3	2,86
2	3	4	3	4	3	4	3	3,43
3	3	2	3	3	3	4	3	3,00
4	3	4	3	3	4	4	4	3,57
5	4	3	3	3	3	3	3	3,14
6	3	3	3	3	3	3	3	3,00
7	4	4	3	3	3	3	3	3,14
8	3	2	3	3	3	3	3	2,86
9	4	3	3	3	3	3	3	3,14
10	3	3	3	3	3	3	3	3,00
Total	33	31	30	31	30	33	30	31,14

The questionnaire instrument above contained 10 statements from 7 respondents including the vice principal and automotive teacher. From these data, calculations are carried out to find the mean, median, mode, standard deviation, highest value, and lowest value. The results of data management are as follows:

Table 4.13 Suitability of the Implementation of Human Resource Variables

Mean	Median	Modus	Standard Deviation	High Value	Lower Value
31.14	31	30	1.35	33	30

In the implementation of integrated curriculum learning at SMK Negeri 2 Surabaya which in terms of human resource variables, there are sub-variables

that become a measure of conformity. In the questionnaire sheet, there are statement items that review each of the sub-variables. The items of the sub variables are as follows:

Table 14. Item Items of Human Resources Variables

Sub Variable	Item Number
Teacher Competence	1,2
The suitability of human resources	3,4
Motivation to innovate	5,6
Companion	7,8
Training	9,10

The percentage value of each item of the human resource variable from the questionnaire instrument is presented in the following graph:

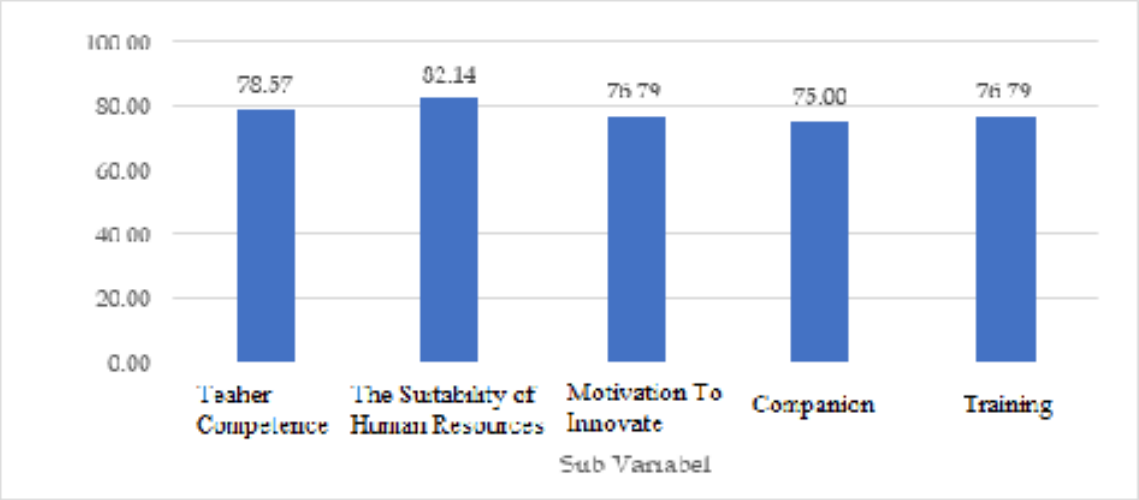

Figure 4.3 HR Variable Graph

The value of achieving the quality of the implementation of the integrated curriculum at SMK Negeri 2 Surabaya which is viewed from the human resource variable with the respondents as deputy principal and automotive teachers can be seen in the following table.

Table 4.15 Value of Achievement of Human Resources Variables

Number of respondent	Number of Question	Total Score	NPK(%)	Description
7	10	218	77,86	Very suitable

From the data above, it can be seen that the implementation of the integrated curriculum at SMK Negeri 2 Surabaya in terms of human resource variables using the respondent's deputy principal and automotive teachers obtained a quality achievement score of 77.86% so that the categories of research results get very appropriate information.

d. The results of implementing the relationship variable with the industry

Table 4:16 Questionnaire Results Data Variable Relationship with Industry

Item Number	Respondent							Average
	1	2	3	4	5	6	7	
1	4	4	4	4	4	4	4	4,00
2	4	3	3	4	3	3	4	3,43
3	3	3	3	3	3	3	3	3,00
4	3	4	3	3	4	4	3	3,43
5	4	3	3	3	3	4	3	3,29
6	4	4	3	3	3	4	3	3,43
7	3	2	3	3	3	3	2	2,71
8	2	2	2	2	1	2	2	1,86
Total	27	25	24	25	24	27	24	25,14

The questionnaire instrument above contained 8 statement items from 7 respondents including the vice principal and automotive teacher. From these data, calculations are carried out to find the mean, median, mode, standard deviation, highest value, and lowest value. The results of data management are as follows:

Table 4.17 Suitability of the Implementation of the Relationship Variable with Industry

Mean	Median	Modus	Standard Deviation	High Value	Lower Value
25.14	25	24	1.35	27	24

In the implementation of integrated curriculum learning at SMK Negeri 2 Surabaya, which is viewed from the relationship variable with the industry, there are sub variables that become the measure of suitability. In the

questionnaire sheet, there are statement items that review each of the sub-variables. The items of the sub variables are as follows:

Table 4:18 Item Items of Relationship Variable with Industry

Sub Variable	Item Number
Curriculum Alignment	1,2
Field Practice	3,4
Technology Transfer	5,6
Absorption of Work	7,8

The percentage value of each item of the relationship variable with the industry from the questionnaire instrument is presented in the following graph:

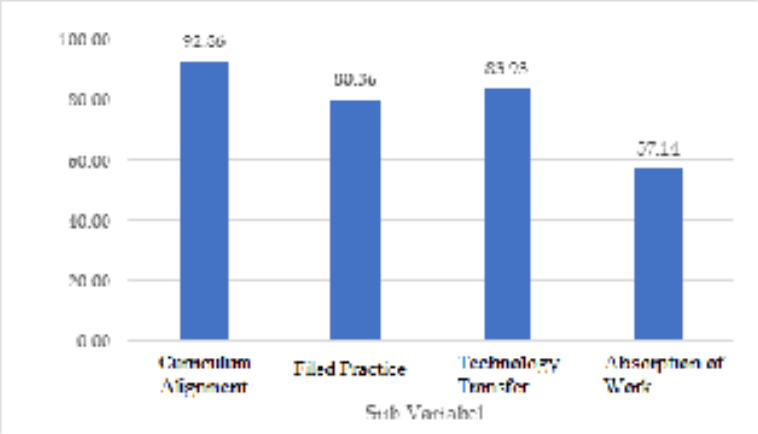

Figure 4.4 Graph of Variable Relationship with Industry

The value of achieving the quality of the implementation of the integrated curriculum at SMKN 2 Surabaya in terms of the relationship variable with the industry with the respondent's deputy principal and automotive teachers can be seen in the following table.

Table 4.19 Achievement Value of Relationship Variable with Industry

Number of respondent	Number of Question	Total Score	NPK(%)	Description
7	8	176	78,57	Very suitable

From the data above, it can be seen that the implementation of the integrated curriculum at SMKN 2 Surabaya which is viewed from the relationship variable with the industry by using the respondent's deputy principal and automotive teachers obtains a quality achievement score of 78.57% so that the categories of research results get very appropriate information.

C. Analysis and Discussion

1. The suitability of the implementation of integrated curriculum learning at SMKN 2 Surabaya is viewed from the test results of the cognitive aspects of the maintenance of light vehicle engines

Based on the results of the test on the extent to which students' mastery of light vehicle engine maintenance subjects according to the integrated curriculum at SMK Negeri 2 Surabaya, of a total of 44 students there were 34 students who passed and 10 students who did not pass, these results show that the competencies contained in the curriculum integrated can not be fully mastered by all students, while classical completeness has a percentage of 77.27%. According to the Ministry of National Education, 2003: 19 good classical completeness is obtained if in one class there are ≥75% of students who pass / complete the test scores. From this statement, it can be obtained information that students who are given learning according to the integrated curriculum in the subject of light vehicle engine maintenance are classical completeness. However, this value has not yet reached the maximum value of implementing integrated curriculum learning in the cognitive aspects of the subject of maintenance of light vehicle engines by 100%. This can be caused by the results of the learning implementation variables that have not been maximal, such as the sub-variable teaching preparation where students before learning do not first learn the material at home, so that when learning in class the material can be directly discussed and discussed with the teacher and students. In the time sub-variable where the enthusiasm for student and teacher learning from morning to evening tends to decrease because energy has been drained by a lot of material received / studied since morning. From the human resource variables are also not optimal, such as the sub-variable of teacher motivation to innovate, the mentoring sub-variable and the teacher training sub-variable, where each teacher has different teaching methods in delivering material, provides motivation and assistance to students, and not all teachers who teach have participated in training from the industry. From the results of the cognitive aspect tests that have not been maximal, it is necessary to improve the

implementation of integrated curriculum learning, such as students are expected to learn the material first before learning, arrange learning time strategies so that student morale remains high, and conduct teacher training in industry as a whole so that the competence of all teachers corresponding. and not all teachers who teach have attended training from the industry. From the results of the cognitive aspect tests that have not been maximal, it is necessary to improve the implementation of integrated curriculum learning, such as students are expected to learn the material first before learning, arrange learning time strategies so that student morale remains high, and conduct teacher training in industry as a whole so that the competence of all teachers corresponding. and not all teachers who teach have attended training from the industry. From the results of the cognitive aspect tests that have not been maximal, it is necessary to improve the implementation of integrated curriculum learning, such as students are expected to learn the material first before learning, arrange learning time strategies so that student morale remains high, and conduct teacher training in industry as a whole so that the competence of all teachers corresponding.

2. Supporting factors for the successful implementation of the integrated curriculum at SMKN 2 Surabaya

   From the results of research conducted to determine the supporting factors for the successful implementation of the integrated curriculum by using questionnaires and interviews conducted on the integrated curriculum manager which includes deputy principals and automotive teachers, several supporting indicators are obtained. The supporting indicators are taken from the initial planning data in the curriculum, and from the highest average score in the implementation of the results of the questionnaire in each variable, as well as seeing the results of interviews conducted by researchers.

   As for the supporting factors in the implementation of integrated curriculum learning in terms of the variable conditions for classrooms and workshops are as follows:

a. Classroom

The result of the average value obtained from the classroom indicator is 89.29%. This shows that the availability of learning spaces in light vehicle engineering skills competencies that are comfortable and supportive for theoretical learning will improve the quality of learning carried out.

b. Workshop

The result of the average value obtained from the workshop indicator is 85.71%. This shows that the availability and condition of the workshop / lab in the competency of light vehicle engineering skills that are in accordance with good lighting and air circulation, so in the practical learning process students will be more comfortable and easier to practice in the workshop / lab.

c. Application of K3

The result of the average value obtained from the indicator of K3 application is 80.95%. This shows that the availability of adequate K3 symbols and equipment in the workshop / lab in light vehicle engineering competency can anticipate and minimize work accidents when students do practical learning, and can familiarize students with K3 symbols and K3 equipment such as PPE (Personal protective equipment) and APAR (light fire extinguisher) when later working in the world of work.

As for the supporting factors in the implementation of integrated curriculum learning in terms of learning implementation variables are as follows:

a. Materials and equipment (learning media)

The results of the average value obtained from the material and equipment indicators (learning media) is 85.71%. This shows that the learning materials used are in accordance with KIKD (Core Competencies for Basic Competencies) in the form of soft files, e-books, literacy books, jobsheets, and equipment (learning media) in supporting the learning process, their availability is sufficient, which will further encourage students to be more easy to understand theoretical learning material.

b. Learning process

The result of the average value obtained from the learning process indicator is 77.38%. This shows that in the learning process the material presented is in accordance with KD (Basic Competence) in the integrated curriculum so that students have competencies that match the needs of the industry. In point number 7, a percentage of 50% is obtained, this shows that students are not given assignments at the end of each lesson. This is in accordance with the K13 curriculum and the full day system which does not emphasize giving homework to students.

c. Learning evaluation

The average score obtained from the learning evaluation indicator is 83.93%. This shows that the evaluation process carried out on the cognitive aspects of learning has gone well in accordance with the competencies in the integrated curriculum. Students can find out the extent of their abilities and there are remedies when students have not reached the specified minimum competency.

As for the supporting factors in the implementation of integrated curriculum learning in terms of human resource variables are as follows:

a. Teacher competence

The result of the average score obtained from the teacher competency indicator is 78.57%. This shows that the educational background of the teacher has a bachelor's level education level or above and the competence of the teacher already has provisions in automotive engineering, and some existing teachers have a certificate of competence for expertise from the industry, so that in the process of delivering material in learning it can be conveyed properly to learners.

b. Number and suitability of HR

The result of the average value obtained from the indicator of the number and suitability of human resources is 82.14%. This shows that the number of human resources / teachers is sufficient in implementing learning, even

though there are some teachers who are still honorary status. Every teacher has an understanding of learning management according to the integrated curriculum implemented at SMK Negeri 2 Surabaya, so that students gain good subject matter competence.

As for the supporting factors in the implementation of integrated curriculum learning in terms of the relationship variables with industry are as follows:

a. Curriculum alignment

The average score obtained from the curriculum alignment indicator is 92.86%. This shows that the relationship with industry has been going well, and the competencies needed in the industry have been synchronized with the existing learning competencies at SMK Negeri 2 Surabaya, and there is full support from stakeholders for smooth cooperation in implementing the integrated curriculum. With the appropriate competencies in schools with those in industry, it is hoped that graduates will be immediately ready to work.

b. Fieldwork practice

The result of the average value obtained from the field work practice indicator is 80.36%. This shows that the school and industry have collaborated in placing students in practical field work so that students know practical competencies that are not found in schools, and there is monitoring from the school and industry in the implementation of industrial practices so that the implementation can run smoothly.

c. Technology transfer

The result of the average value obtained from the technology transfer indicator is 83.93%. This shows that technology transfer in the industry has been implemented in SMK which has a positive impact on the development of learning, and there is an industrial culture carried out in schools so that students can familiarize themselves more according to the industry, such as

the application of the 5R culture, concise, neat, neat, care, and be diligent, and there are special roads that are given green color for pedestrians.

3. Inhibiting factors for the successful implementation of the integrated curriculum in the TKR expertise program at SMK Negeri 2 Surabaya

From the results of research conducted to determine the factors inhibiting the success of the implementation of the integrated curriculum by using questionnaires and interviews conducted on the integrated curriculum manager which includes deputy principals and automotive teachers, several indicators are found to be obstacles. The inhibiting indicators are taken from the initial planning data in the curriculum and from the lowest average score in the implementation of the results of the questionnaire in each variable, as well as seeing the results of interviews conducted by researchers.

As for the inhibiting factors in the implementation of integrated curriculum learning in terms of the condition variables of classrooms and workshops are equipment and practice media.

The results of the average value obtained from the equipment and media practice indicators is 63.10%. This happens because the available equipment is still insufficient and the practical media used is still small and does not meet the number of students needed for the learning process and some are still not in accordance with the latest technology, this will affect the results of learning output that are less than optimal. As well as governance of use and use of practice tools that have not been implemented properly.

As for the inhibiting factors in the implementation of integrated curriculum learning in terms of the learning implementation variables are as follows:

a. Teaching preparation

The average score obtained from the teaching preparation indicator is 62.50%. In the preparation of learning tools, some teachers have been guided by the integrated curriculum so that the material to be delivered to students is as expected, but in its implementation it is constrained by practical media that do not fully support it. From students before learning, they do not first study

the material at home, so that when learning in class the material can be directly discussed and discussed with the teacher and students. Where discussion can foster self-confidence and critical thinking attitude from students.

b. Time

The result of the average value obtained from the time indicator is 70.24%. This is because the enthusiasm for student and teacher learning from morning to evening tends to decrease because energy has been drained by a lot of material received / studied since morning. Therefore, different strategies are needed in the learning process in the morning, afternoon, and evening, so that students can absorb the material optimally.

As for the inhibiting factors in the implementation of integrated curriculum learning in terms of human resource variables are as follows:

a. Motivate teachers to innovate

The result of the average score obtained from the indicator of teacher motivation to innovate is 76.79%. This is because the personalities of each teacher are different so that the ability to innovate with new things, create a comfortable classroom atmosphere and motivate student learning is not optimal, plus there are some teachers who are almost retired, so the learning model carried out is almost the same as before the implementation of the integrated curriculum, only competencies have adjusted to the integrated curriculum.

b. Accompaniment

The result of the average score obtained from the mentoring indicator is 75.00%. This is because not all teachers have the ability as consultants in guiding, accompanying, and providing solutions to students when facing problems in learning. Most of the teachers only provide material according to the integrated curriculum and there is still a lack of the teacher's role as a consultant to assist and guide students.

c. Teacher training

The result of the average score obtained from the teacher training indicator is 76.79%. Teachers have received training / workshops / seminars and

participated in apprenticeship programs in industry according to skill competencies, this can increase the ability and quality of learning from teachers. But from the results of interviews with several teachers, it was said that not all teachers who taught received training from the industry, only a few teachers were assigned to take part in training because the industry provided a limited quota, so not all teachers mastered it and the learning materials delivered to students were not optimal.

As for the inhibiting factor in the implementation of integrated curriculum learning in terms of the relationship variable with industry is job absorption. The result of the average value obtained from the employment absorption indicator is 57.14%. In SMK, there are already collaborations in the absorption of graduates for work, but after research there is still a lack of graduates who are absorbed into the cooperation industry, from the results of interviews with the head of the expertise program, many students do not want to work far outside the city such as in the Greater Jakarta area and outside the island. , because they want to find work around Surabaya, while the quota for workers needs is only a few in Surabaya. And until now SMK Negeri 2 does not routinely hold job fairs by inviting industries, even though this can make it easier for students to find work.

Of the several inhibiting factors, it is the cause of the inadequacy of the implementation of integrated curriculum learning on the competency of light vehicle engineering expertise at SMK Negeri 2 Surabaya. So that to obtain better implementation results from integrated curriculum learning, a comprehensive reform of teachers, students, schools, and support from the government and industry is needed so that school performance can be better.

CHAPTER V
CONCLUSIONS AND SUGGESTIONS

A. Conclusion

1. The suitability of the implementation of integrated curriculum learning in terms of the extent to which students' mastery of the cognitive aspects of the light vehicle engine maintenance subject at SMK Negeri 2 Surabaya who took the test questions, obtained the percentage of classical completeness of the test questions was 77.27% with the complete category. So classically the students' mastery of the cognitive aspects of the light vehicle engine maintenance subject is as expected in the integrated curriculum.

2. Factors that support the implementation of integrated curriculum learning on the competency of light vehicle engineering expertise in terms of the conditions for classrooms and workshops are: a) classrooms, b) workshops, and c) K3 implementation. Judging from the learning implementation variables are: a) material and equipment (learning media), b) learning process, and c) learning evaluation. Judging from the human resource variables are: a) teacher competence, and b) the number and suitability of human resources. In terms of the relationship with industry variables are: a) curriculum alignment, b) field work practices, and c) technology transfer.

3. Factors that inhibit the implementation of integrated curriculum learning on the competency of light vehicle engineering expertise in terms of the conditions for classrooms and workshops are: a) equipment and practical media. Judging from the learning implementation variables are: a) teaching preparation, and b) time. In terms of human resources variables are: a) teacher motivation to innovate, b) mentoring, and c) teacher training. In terms of the relationship with industry variables are: a) job absorption.

B. Suggestion

1. To improve the implementation of integrated curriculum learning includes facilities in the practical learning process, teacher innovation in delivering material, and holding job fairs by inviting industry so that graduates can be absorbed properly.
2. Direct supervision / monitoring from the government and also industry is required in the implementation of integrated curriculum learning on the competency of light vehicle engineering expertise at SMKN 2 Surabaya.
3. From the results of the validation of the integrated curriculum to several industries, there are several recommendations or competency inputs needed in the industrial world, such as soft skill material including team work, integrity, responsibility, etc., basic material for technician work, for example PDI (Pre Delevery Inspection), introduction to service quick / MQP, and competencies that keep up with the technological developments in the automotive world.
4. In this study only evaluates related to cognitive aspects tests and light vehicle engine maintenance subjects, therefore further research is needed on other aspects and all productive subjects to determine the overall implementation of integrated curriculum learning at SMK Negeri 2 Surabaya.

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Appendix 1 Letter of Assignment for Thesis Supervisor

KEMENTERIAN RISET, TEKNOLOGI, DAN PENDIDIKAN TINGGI
UNIVERSITAS NEGERI SURABAYA
FAKULTAS TEKNIK
JURUSAN TEKNIK MESIN

SURAT PENUNJUKAN
Nomor : 0683/UN38.5.4.2/PP/2019

Hal : Pembimbing Skripsi

Berkenaan dengan masa/waktu Bimbingan Skripsi semester genap 2018/2019. Ketua Jurusan Teknik Mesin Fakultas Teknik Unesa menunjuk kepada Dosen tersebut dibawah ini :

Nama	:	Dr. A. Grummy Wailanduw, M.Pd., M.T
NIP	:	196208231986011001

Untuk membimbing Skripsi mahasiswa tersebut dibawah ini :

Nama	:	Ahmad Hafid Abdullah
NIM	:	16050524015
Program Studi	:	S1 Pendidikan Teknik Mesin Otomotif
Judul Skripsi	:	Relevansi Kurikulum 2013 Program Produktif Kompetensi Keahlian Teknik Kendaraan Ringan SMKN 2 Surabaya Terhadap Kebutuhan Dunia Industri di Kota Surabaya

Demikian surat penunjukan ini dibuat untuk dilaksanakan dengan penuh tanggung jawab dan atas perhatiannya disampaikan terima kasih.

Surabaya, 16 Agustus 2019
Ketua Jurusan,

Dr. Sudiyanto, M.Pd.
NIP. 196004181988031002

Appendix 2 Research Permit

KEMENTERIAN RISET, TEKNOLOGI, DAN PENDIDIKAN TINGGI
UNIVERSITAS NEGERI SURABAYA
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F. +62 31 8280796
www.ft.unesa.ac.id

Nomor : B/50278 /UN38.5/PP.11.01/2019 16 AUG 2019
Lampiran : Satu eksemplar
Hal : Permohonan Ijin Melakukan Survei/Penelitian

Yth. Kepala SMK Negeri 2 Surabaya
Jl. Tentara Genie Pelajar No. 26
di
Surabaya

Dengan ini kami beritahukan bahwa dalam rangka menyelesaikan skripsi pada jenjang Strata Satu (S-1) Fakultas Teknik Universitas Negeri Surabaya, mahasiswa diwajibkan melakukan kegiatan survei/penelitian, observasi, interview, pengumpulan data, dan percobaan bahan .

Sehubungan dengan itu kami mohon bantuan Saudara berkenan memberikan ijin kepada mahasiswa kami untuk melakukan kegiatan tersebut pada lembaga/perusahaan/instansi yang Saudara pimpin. Sebagai bahan pertimbangan bersama ini kami lampirkan proposal kegiatan dimaksud.
Adapun data mahasiswa tersebut adalah sebagai berikut :

Nama	:	**Ahmad Hafid Abdullah**
N I M	:	16050524015
Program Studi	:	S-1 Pend. Teknik Mesin
Jurusan	:	Teknik Mesin
No. Telepon/Hp.	:	085385236332
Judul Skripsi	:	Relevansi Kurikulum 2013 Program Produktif Kompetensi Keahlian Teknik Kendaraan Ringan SMKN 2 Surabaya Terhadap Kebutuhan Dunia Industri di Kota Surabaya
Dosen Pembimbing	:	**Dr. A. Grummy Wailanduw, M.Pd., M.T.**
NIP	:	196208231986011001

Demikian atas perhatian, bantuan, dan kerjasama yang baik kami sampaikan terima kasih.

Wakil Dekan
Bidang Akademik,

Drs. Edy Sulistiyo, M.Pd.
NIP 196404201991031005

Tembusan:
- Ketua Jurusan Teknik Mesin

Appendix 3 Form of Thesis Proposal Guidance

KEMENTERIAN RISET, TEKNOLOGI, DAN PENDIDIKAN TINGGI
UNIVERSITAS NEGERI SURABAYA
FAKULTAS TEKNIK
JURUSAN TEKNIK MESIN

BLANGKO BIMBINGAN PROPOSAL SKRIPSI

NAMA : Ahmad Hagid Abdullah
NO. REG. / PRODI : 16050524015 / S1 Pendd. Teknik Mesin / ~~Produksi~~ / Otomotif*)
JUDUL SKRIPSI : Evaluasi Pembelajaran Kurikulum Integrated pada Mata Pelajaran Produktif Kompetensi Keahlian Teknik Kendaraan Ringan di SMK Negeri 2 Surabaya

Pert. ke	Tgl / Bln / Th	Materi Bimbingan	Paraf Dosen
1.	27 Mei 2019	Mencari topik penelitian.	
2.	12 Juni 2019	Mencari sekolah (SMK) tempat penelitian	
3.	5 Agustus 2019	Membahas hasil dari survei awal tempat Penelitian.	
4.	7 Oktober 2019	- Menentukan Judul Penelitian - BAB I	
5.	4 Nov 2019	- Revisi Bab I - Bimbingan Bab II	
6.	11 Nov 2019	- Revisi Bab II - Bimbingan Bab III	
7.	18 Nov 2019	- Revisi Bab III - Kelengkapan Lampiran & Daftar-daftar	
8.	19 Nop 2019	Siap untuk seminar proposal	

telah memenuhi syarat dan disetujui untuk di sendangkan

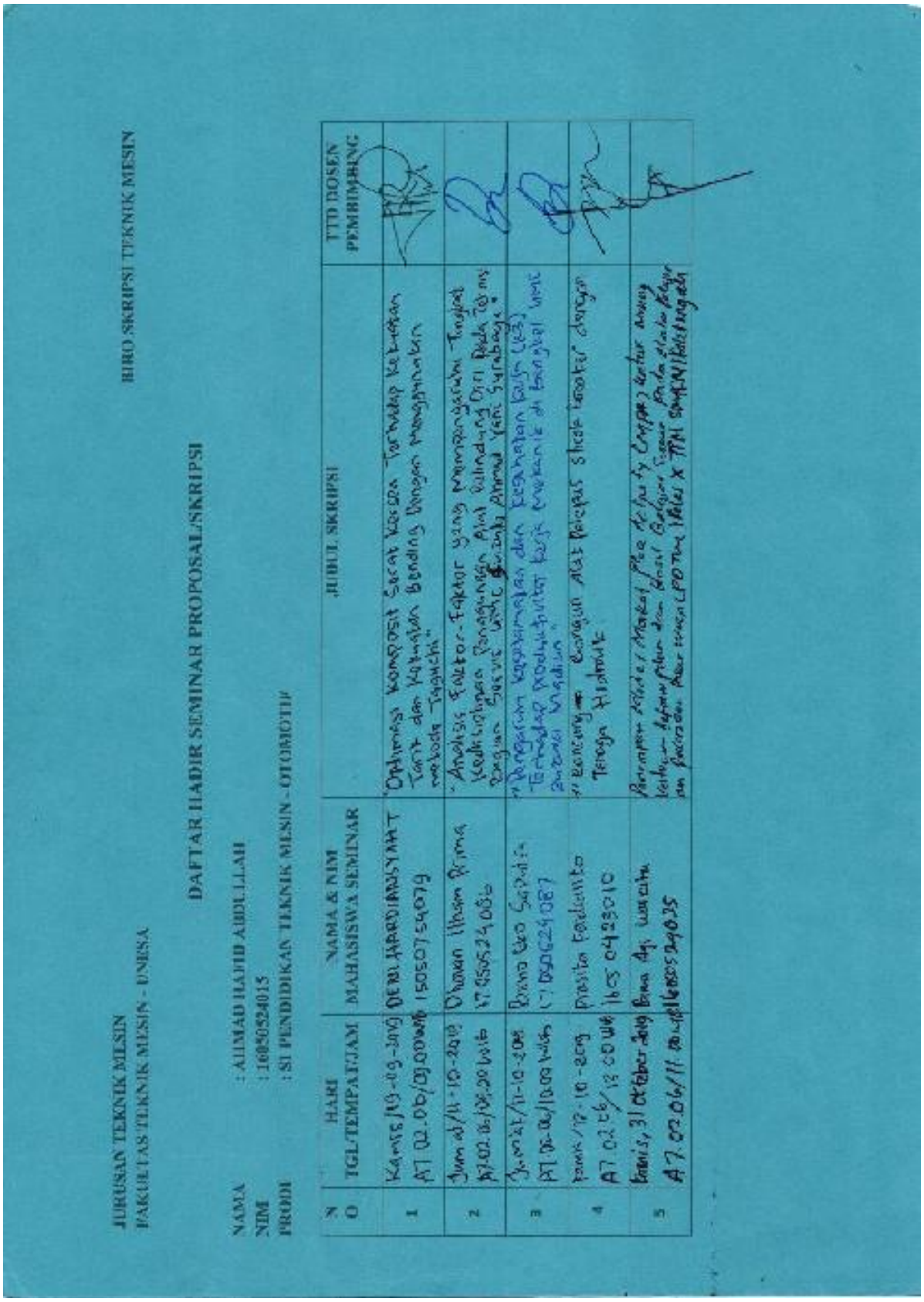
Menyetujui 19 - 11 - 2019.
Dosen Pembimbing,

A. Grummy M.
NIP. 196202231986011001

*) Coret yang tidak perlu

www.unesa.ac.id "Growing with character"

Appendix 4 Present Card for Thesis Proposal Seminar



JURUSAN TEKNIK MESIN
FAKULTAS TEKNIK MESIN - UNESA

BIRO SKRIPSI TEKNIK MESIN

DAFTAR HADIR SEMINAR PROPOSAL/SKRIPSI

NAMA : AHMAD HAFID ABDULLAH
NIM : 16050524015
PRODI : S1 PENDIDIKAN TEKNIK MESIN - OTOMOTIF

NO	HARI TGL/TEMPAT/JAM	NAMA & NIM MAHASISWA SEMINAR	JUDUL SKRIPSI	TTD DOSEN PEMBIMBING
1	Kamis/19-09-2019 A7.02.06/09.00 WIB	DENI HARDIANSYAHT 15050754079	"Optimasi Komposit Serat Kersen Terhadap Kekuatan Tarik dan Kekuatan Bending Dengan Menggunakan metode Taguchi"	
2	Jum'at/11-10-2019 A7.02.06/09.20 WIB	Dhovan Ilham Prima 17050524086	"Analisis Faktor-Faktor yang Mempengaruhi Tingkat Kedisiplinan Penggunaan Alat Pelindung Diri Pada Teknisi Bagian Seavis UMC Suzuki Ahmad Yani Surabaya"	
3	Jum'at/11-10-2019 A7.02.06/10.00 WIB	Bruno Eko Saputra 17050624087	"Pengaruh Kesehatan dan Kesehatan Kerja (K3) Terhadap Produktivitas Kerja Mekanik di Bengkel UMC Suzuki Madiun"	
4	Kamis/12-10-2019 A7.02.06/13.00 WIB	Prasita Ferdianto 16050423010	"Rancang Bangun Alat Pelepas Sticok Breaker dengan Tenaga Hidrolik"	
5	Kamis, 31 Oktober 2019 A7.02.06/11.00 WIB	Bima Agi Wasesha 16050524035	Penerapan Model Market Place Activity (MPA) untuk Mining Vertical Reform Plan dan Hasil Belajar Siswa Pada Mata Pelajaran Pekerjaan Pasar Wasa (PDTW) Kelas X TPM SMKN 1 Kalitengah	

Kementerian Riset, Teknologi, dan Perguruan Tinggi
Universitas Negeri Surabaya
Fakultas Teknik
Jurusan Teknik Mesin

Kampus Ketintang
Gedung A6 Fakultas Teknik
Universitas Negeri Surabaya
Telp. 8280009 Psw.503
Kode Pos 60231 Surabaya

MATRIK SEMINAR PROPOSAL SKRIPSI

Nama : **Ahmad Hafid Abdullah**

NIM / Prodi : **16050524015/ S1 Pendidikan Teknik Mesin Otomotif**

Judul : **Evaluasi Pembelajaran Kurikulum *Integrated* pada Mata Pelajaran Produktif Kompetensi Keahlian Teknik Kendaraan Ringan di SMK Negeri 2 Surabaya.**

No.	Nama Dosen Penguji / Dosen Pembimbing*	Senin 25-11-2019	Selasa 26-11-2019	Rabu 27-11-2019	Kamis 28-11-2019	Jum'at 29-11-2019	Tanda Tangan
1.	Drs. I Made Muliana, M.Kes. NIP. 195506041985031002	I II III IV V	I II III (IV) V	I II III (IV) V	I II III (IV) V	I II III (IV) V	
2	Dr. Soeryanto, M.Pd. NIP. 196004181988031003	I II III IV V	I II III (IV V)	I II III IV V	I II III IV V	I II III IV V	
3	Dr. A. Grummy Wailanduw, M.Pd., M.T.* NIP. 196208231986011001	I II III IV V	I II III IV (V)	I II III IV V	I II III IV V	I II III IV V	

Keterangan : **Jam I** : **07.00**
II : **09.00**
III : **11.00**
IV : **13.00**
V : **15.00**

Surabaya, 19 November 2019
Kaprodi S1 Pendidikan Teknik Mesin

Dr. Soeryanto, M.Pd.
NIP. 196004181988031003

Appendix 6 Examiner Assignment Letter I Thesis Proposal Seminar

KEMENTERIAN RISET, TEKNOLOGI, DAN PENDIDIKAN TINGGI
UNIVERSITAS NEGERI SURABAYA
FAKULTAS TEKNIK
JURUSAN TEKNIK MESIN

SURAT PENUNJUKAN

Nomor : 0929/UN.38.5.4.2/PP/2019

Hal : Membahas Proposal Skripsi

Berkenaan dengan masa/waktu Pembahasan Proposal Skripsi semester gasal 2019/2020, Ketua Jurusan Teknik Mesin Fakultas Teknik Unesa menunjuk kepada Dosen tersebut dibawah ini:

Nama	:	Drs. I Made Muliatna, M.Kes.
NIP	:	195506041985031002

Untuk Membahas Proposal Skripsi mahasiswa tersebut dibawah ini :

Nama	:	Ahmad Hafid Abdullah
NIM	:	16050524015
Program Studi	:	S1 Pendidikan Teknik Mesin Otomotif
Hari	:	Selasa, 26 November 2019
Waktu	:	15.00 - selesai
Tempat	:	Ruang Lab. Kelistrikan
Judul Skripsi	:	Evaluasi Pembelajaran Kurikulum *Integrated* Pada Mata Pelajaran Produktif Kompetensi Keahlian Teknik Kendaraan Ringan di SMK Negeri 2 Surabaya

Demikian surat penunjukan ini dibuat untuk dilaksanakan dengan penuh tanggung jawab dan atas perhatiannya diucapkan terima kasih.

Surabaya, 20 November 2019
Ketua Jurusan,

Dr. Soeryanto, M.Pd
NIP. 196004181988031003

Appendix 7 Examiner Task Letter II Thesis Proposal Seminar

KEMENTERIAN RISET, TEKNOLOGI, DAN PENDIDIKAN TINGGI
UNIVERSITAS NEGERI SURABAYA
FAKULTAS TEKNIK
JURUSAN TEKNIK MESIN

SURAT PENUNJUKAN
Nomor : 0929/UN.38.5.4.2/PP/2019

Hal : Membahas Proposal Skripsi

Berkenaan dengan masa/waktu Pembahasan Proposal Skripsi semester gasal 2019/2020, Ketua Jurusan Teknik Mesin Fakultas Teknik Unesa menunjuk kepada Dosen tersebut dibawah ini:

Nama	:	Dr. Soeryanto, M.Pd.
NIP	:	196004181988031003

Untuk Membahas Proposal Skripsi mahasiswa tersebut dibawah ini :

Nama	:	Ahmad Hafid Abdellah
NIM	:	16050524015
Program Studi	:	S1 Pendidikan Teknik Mesin Otomotif
Hari	:	Selasa, 26 November 2019
Waktu	:	15.00 - selesai
Tempat	:	Ruang Lab. Kelistrikan
Judul Skripsi	:	Evaluasi Pembelajaran Kurikulum *Integrated* Pada Mata Pelajaran Produktif Kompetensi Keahlian Teknik Kendaraan Ringan di SMK Negeri 2 Surabaya

Demikian surat penunjukan ini dibuat untuk dilaksanakan dengan penuh tanggung jawab dan atas perhatiannya diucapkan terima kasih.

Surabaya, 20 November 2019
Ketua Jurusan,

Dr. Soeryanto, M.Pd
NIP. 196004181988031003

Appendix 8 Examiner Assignment Letter III Thesis Proposal Seminar

KEMENTERIAN RISET, TEKNOLOGI, DAN PENDIDIKAN TINGGI
UNIVERSITAS NEGERI SURABAYA
FAKULTAS TEKNIK
JURUSAN TEKNIK MESIN

SURAT PENUNJUKAN

Nomor 0929/UN.38.5.4.2/PP/2019

Hal : Membahas Proposal Skripsi

Berkenaan dengan masa/waktu Pembuhasan Proposal Skripsi semester gasal 2019/2020, Ketua Jurusan Teknik Mesin Fakultas Teknik Unesa menunjuk kepada Dosen tersebut dibawah ini:

Nama	:	Dr. A. Grummy Wailanduw, M.Pd., M.T.
NIP	:	196208231986011001

Untuk Membahas Proposal Skripsi mahasiswa tersebut dibawah ini :

Nama	:	Ahmad Hafid Abdullah
NIM	:	16050524015
Program Studi	:	S1 Pendidikan Teknik Mesin Otomotif
Hari	:	Selasa, 26 November 2019
Waktu	:	15.00 - selesai
Tempat	:	Ruang Lab. Kelistrikan
Judul Skripsi	:	Evaluasi Pembelajaran Kurikulum *Integrated* Pada Mata Pelajaran Produktif Kompetensi Keuhlian Teknik Kendaraan Ringan di SMK Negeri 2 Surabaya

Demikian surat penunjukan ini dibuat untuk dilaksanakan dengan penuh tanggung jawab dan atas perhatiannya diucapkan terima kasih.

Surabaya, 20 November 2019
Ketua Jurusan,

Dr. Sucipto, M.Pd.
NIP. 196304181988031003

Appendix 9 Examining Lecturer Revision Form I

KEMENTERIAN RISET, TEKNOLOGI, DAN PENDIDIKAN TINGGI
UNIVERSITAS NEGERI SURABAYA
FAKULTAS TEKNIK
JURUSAN TEKNIK MESIN

Kampus Ketintang
Surabaya 60231
T. +62-31-8280009 pes.500 510
F. +62-31-8280708, 8254060
www.fb.unesa.ac.id

BLANGKO REVISI SEMINAR PROPOSAL SKRIPSI

NAMA : Ahmad Hafid Abdullah
NO. REG. / PRODI. : 16050524015 / S1 / Pendd. Teknik Mesin ~~Produksi~~ / Otomotif (*)
JUDUL SKRIPSI : Evaluasi Pembelajaran Kurikulum Integrated pada Mata Pelajaran Produktif Kompetensi Keahlian TKR di SMKN 2 Surabaya
DOSEN PEMBIMBING : Dr. A. Grummy Wailanduw, M.P.d., M.T.

No.	Masalah yang direvisi	Paraf Dosen
1.	Cek Tata Tulis	[signature]
2.	Tambahkan Kepala Tabel pada Tabel yang di potong!!	[signature]

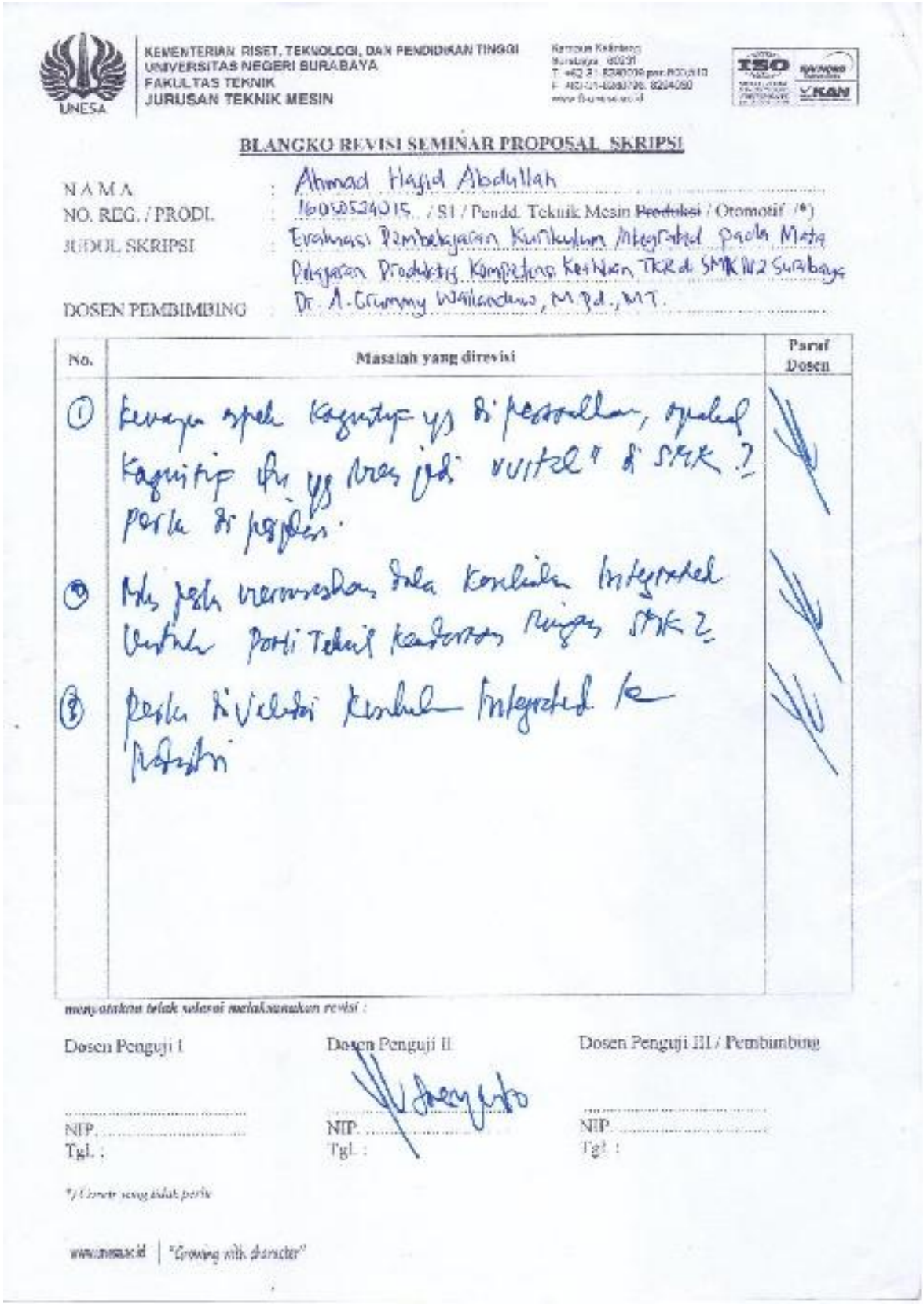
menyatakan telah selesai melaksanakan revisi :

Dosen Penguji I	Dosen Penguji II	Dosen Penguji III / Pembimbing
I Made Mulistana		
NIP. 19550604 190503	NIP.	NIP.
Tgl. 2-12-2019	Tgl.	Tgl.

*) Coret yang tidak perlu

www.unesa.ac.id | "Growing with character"

Appendix 10 Examining Lecturer Revision Form II



KEMENTERIAN RISET, TEKNOLOGI, DAN PENDIDIKAN TINGGI
UNIVERSITAS NEGERI SURABAYA
FAKULTAS TEKNIK
JURUSAN TEKNIK MESIN

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F: +62-31-8280786, 8284060
www.fk.unesa.ac.id

BLANGKO REVISI SEMINAR PROPOSAL SKRIPSI

NAMA : Ahmad Hafid Abdullah
NO. REG. / PRODI. : 16050524015 / S1 / Pendd. Teknik Mesin ~~Produksi~~ / Otomotif /*)
JUDUL SKRIPSI : Evaluasi Pembelajaran Kurikulum Integrated pada Mata Pelajaran Produktif Kompetensi Keahlian TKR di SMK N 2 Surabaya
DOSEN PEMBIMBING : Dr. A. Grummy Wailanduw, M.Pd., MT.

No.	Masalah yang direvisi	Paraf Dosen
1	Kenapa aspek kognitif yg di pesoalkan, apakah kognitif itu yg mas jadi "vital" di SMK ? perlu di perjelas.	
2	Mas perlu merumuskan dalam kerikulum Integrated untuk Porti Teknik kendaraan ringan SMK ?	
3	perlu di validasi kerikulum Integrated ke Industri	

menyatakan telah selesai melaksanakan revisi :

Dosen Penguji I	Dosen Penguji II	Dosen Penguji III / Pembimbing
.....	[signature]	.....
NIP.	NIP.	NIP. .....
Tgl. :	Tgl. :	Tgl. :

*) Coret yang tidak perlu

www.unesa.ac.id | "Growing with character"

Appendix 11 Examiner Lecturer Revision Form III

KEMENTERIAN RISET, TEKNOLOGI, DAN PENDIDIKAN TINGGI
UNIVERSITAS NEGERI SURABAYA
FAKULTAS TEKNIK
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Kampus Ketintang
Surabaya 60231
T. +62-31-6280009 pes.500,516
F. +62-31-6280798, 8294300
www.fb-unesa.ac.id

BLANGKO REVISI SEMINAR PROPOSAL SKRIPSI

NAMA : Ahmad Hafid Abdullah
NO. REG. / PRODI : 16050524015 / S1 / Pendd. Teknik Mesin ~~Produksi~~ / Otomotif /*)
JUDUL SKRIPSI : Evaluasi Pembelajaran Kurikum Integrated Pada Mata Pelajaran Produktif Kompetensi Keahlian TKR di SMKN 2 Surabaya
DOSEN PEMBIMBING : Dr. A. Grummy Wailanduw, M.Pd., M.T.

No.	Masalah yang direvisi	Paraf Dosen
1.	Perlu dipahami dalam menganalisis data menggunakan uji Instrumen : tingkat kesukaran, dst.	A.
2.	Evaluasi Pembelajaran → berdasarkan tingkat kesukaran Apakah ini diperlukan ? → Sesuaikan dengan kompetensi yang diperlukan	A.
3.	hal 20-22, kurikulum integrated perlu divalidasi ke beberapa industri terkait	A.
4.	Uji coba → pada kelas umum →	A.

menyatakan telah selesai melaksanakan revisi :

Dosen Penguji I	Dosen Penguji II	Dosen Penguji III / Pembimbing
.....	.....	A. GRUMMY W.
NIP.	NIP.	NIP. 19620823 198601 1 001
Tgl. :	Tgl. :	Tgl. : 3 - 12 - '19

*) Coret yang tidak perlu

www.unesa.ac.id | "Growing with character"

Appendix 12 List of Attendees of Thesis Proposal Seminar

KEMENTERIAN RISET, TEKNOLOGI, DAN PENDIDIKAN TINGGI
UNIVERSITAS NEGERI SURABAYA
FAKULTAS TEKNIK
JURUSAN TEKNIK MESIN

Kampus Ketintang
Surabaya 60231
T. 162-31-8280009 pes.500,510
F. 162-31-8280706, 8204380
www.ft.unesa.ac.id

DAFTAR HADIR PESERTA
SEMINAR PROPOSAL SKRIPSI

Nama : Ahmad Hafid Abdullah
NIM : 16050524015
Jurusan/Prodi : Teknik Mesin ; S1 Pend. Teknik Mesin
Pembimbing : Dr. A. Grummy Wailanduw, M.Pd., M.T.
Judul Skripsi : Evaluasi Pembelajaran Kurikulum Integrated pada Mata Pelajaran Produktif Kompetensi Keahlian TKR di SMK Negeri 2 Surabaya.

No.	Nama	NIM	Jur/Prodi	Tanda tangan
1.	RANDY ILHAM EFO L.	16050524011	TM / PTM	[signature]
2.	BIMA GALANG K.	16050524004	TM/PTM	[signature]
3.	Fatheinza Olivia SP	17050524066	TM / PTM	[signature]
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				

Appendix 13 Cover Letter for Curriculum Validation Permits in Industry

KEMENTERIAN RISET, TEKNOLOGI, DAN PENDIDIKAN TINGGI
UNIVERSITAS NEGERI SURABAYA
FAKULTAS TEKNIK

Kampus Ketintang
Gedung M 2nd
T. +62 31 8280009 pes. 131/139
F. +62 31 8280130
www.fatek.unesa.ac.id

Nomor : B/3579/UN38.5/PP.11.01/2019
Lampiran : Satu eksemplar
Hal : Permohonan Ijin Melakukan Survei/Penelitian

10 DEC 2019

Yth. Kepala HRD Auto2000 Learning Center Jatim
Jl. Raya Waru No. Km.15
di
Sidoarjo

Dengan ini kami beritahukan bahwa dalam rangka menyelesaikan skripsi pada jenjang Strata Satu (S-1) Fakultas Teknik Universitas Negeri Surabaya, mahasiswa diwajibkan melakukan kegiatan survei/penelitian, observasi, interview, pengumpulan data, dan penyebaran bahan .

Sehubungan dengan itu kami mohon bantuan Saudara berkenan memberikan ijin kepada mahasiswa kami untuk melakukan kegiatan tersebut pada lembaga/perusahaan/instansi yang Saudara pimpin. Sebagai bahan pertimbangan bersama ini kami lampirkan proposal kegiatan dimaksud.
Adapun data mahasiswa tersebut adalah sebagai berikut :

Nama	:	**Ahmad Hafid Abdullah**
NIM	:	16050524015
Program Studi	:	S-1 Pend. Teknik Mesin
Jurusan	:	Teknik Mesin
No. Telepon/Hp.	:	085385236332
Judul Skripsi	:	Evaluasi Pembelajaran Kurikulum Integrated pada Mata Pelajaran Produktif Kompetensi Keahlian Teknik Kendaraan Ringan di SMK Negeri 2 Surabaya
Dosen Pembimbing	:	**Dr. A. Grummy Wailanduw, M.Pd., M.T.**
NIP	:	196208231986011001

Demikian atas perhatian, bantuan, dan kerjasama yang baik kami sampaikan terima kasih.

Wakil Dekan
Bidang Akademik,

Drs. Edy Sulistiyo, M.Pd.
NIP. 196404201991031005

Tembusan:
- Ketua Jurusan Teknik Mesin

www.unesa.ac.id | *"Growing with character"*

Daihatsu

KEMENTERIAN RISET, TEKNOLOGI, DAN PENDIDIKAN TINGGI
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FAKULTAS TEKNIK

Kampus Ketintang
Surabaya 60231
T. +62 31 8280009 pes. 121,140
F. +62 31 8290756
www.ftunesa.sch.id

Nomor : B/ 73106 /UN38.5/PP.11.01/2019
Lampiran : Satu eksemplar
Hal : Permohonan Ijin Melakukan Survei/Penelitian

02 DEC 2019

Yth. **Kepala Bengkel Asco Daihatsu**
Jl. Raya Jemursari No. 184 - 186
di
Surabaya

Dengan ini kami beritahukan bahwa dalam rangka menyelesaikan skripsi pada jenjang Strata Satu (S-1) Fakultas Teknik Universitas Negeri Surabaya, mahasiswa diwajibkan melakukan kegiatan survei/penelitian, observasi, interview, pengumpulan data, dan percobaan bahan .

Sehubungan dengan itu kami mohon bantuan Saudara berkenan memberikan ijin kepada mahasiswa kami untuk melakukan kegiatan tersebut pada lembaga/perusahaan/instansi yang Saudara pimpin.
Sebagai bahan pertimbangan bersama ini kami lampirkan proposal kegiatan dimaksud.
Adapun data mahasiswa tersebut adalah sebagai berikut :

Nama	:	**Ahmad Hafid Abdullah**
NIM	:	16050524015
Program Studi	:	S-1 Pend. Teknik Mesin
Jurusan	:	Teknik Mesin
No. Telepon/Hp	:	085385236332
Judul Skripsi	:	Evaluasi Pembelajaran Kurikulum Integrated pada Mata Pelajaran Produktif Kompetensi Keahlian Teknik Kendaraan Ringan di SMK Negeri 2 Surabaya
Dosen Pembimbing	:	**Dr. A. Grummy Wailanduw, M.Pd., M.T**
NIP	:	196208231986011001

Demikian atas perhatian, bantuan, dan kerjasama yang baik kami sampaikan terima kasih.

Wakil Dekan
Bidang Akademik,

Drs. Edy Sulistiyo, M.Pd.
NIP. 196204201991031009

Tembusan:
- Ketua Jurusan Teknik Mesin

Suzuki

KEMENTERIAN PENDIDIKAN DAN KEBUDAYAAN
UNIVERSITAS NEGERI SURABAYA
FAKULTAS TEKNIK
Kampus Ketintang, Jalan Ketintang, Surabaya 60231
Telepon: +6231-8280009 pes, 500-510, Faksimil : +6231-8280796
Laman : ftmsdf.unesa.ac.id, email : ft@unesa.ac.id

Nomor : B/13526/UN38.5/PP.11.01/2020 — 03 MAR 2020
Lampiran: Satu eksemplar
Hal : Permohonan Ijin Melakukan Survei/Penelitian

Yth. Kepala **HRD Suzuki Sejahtera Buana Trada Surabaya**
Jl. Diponegoro No. 148, DR. Soetomo
di
Surabaya

Dengan ini kami beritahukan bahwa dalam rangka menyelesaikan skripsi pada jenjang Strata Satu (S-1) Fakultas Teknik Universitas Negeri Surabaya, mahasiswa diwajibkan melakukan kegiatan survei/penelitian, observasi, interview, pengumpulan data, dan percobaan bahan .

Sehubungan dengan itu kami mohon bantuan Saudara berkenan memberikan ijin kepada mahasiswa kami untuk melakukan kegiatan tersebut pada lembaga/perusahaan/instansi yang Saudara pimpin.
Sebagai bahan pertimbangan bersama ini kami lampirkan proposal kegiatan dimaksud.
Adapun data mahasiswa tersebut adalah sebagai berikut :

Nama	:	**Ahmad Hafid Abdullaah**
NIM	:	16050524015
Program Studi	:	S-1 Pend. Teknik Mesin
Jurusan	:	Teknik Mesin
No. Telepon/Hp.	:	085385235332
Judul Skripsi	:	Evaluasi Pembelajaran Kurikulum Integrated Pada Mata Pelajaran Produktif Kompetensi Keahlian Teknik Kendaraan Ringan Di SMK Negeri 2 Surabaya
Dosen Pembimbing	:	**Dr. A. Grummy Wailanduw, M.Pd., M.T.**
NIP	:	196208231986011001

Demikian atas perhatian, bantuan, dan kerjasama yang baik kami sampaikan terima kasih.

Wakil Dekan
Bidang Akademik,

Drs. Edy Sulistiyo, M.Pd.
NIP 196404201991031005

Tembusan:
- Ketua Jurusan Teknik Mesin

Mitsubishi

KEMENTERIAN PENDIDIKAN DAN KEBUDAYAAN
UNIVERSITAS NEGERI SURABAYA
FAKULTAS TEKNIK
Kampus Ketintang, Jalan Ketintang, Surabaya 60231
Telepon: +6231-8280009 pes. 500-510, Faksimil : 16231-8280796
Laman : https://ft.unesa.ac.id, email : ft@unesa.ac.id

Nomor : B/12523/UN38.5/PP.11.01/2020 03 MAR 2020
Lampiran : Satu eksemplar
Hal : Permohonan Ijin Melakukan Survei/Penelitian

Yth. Kepala HRD Mitsubishi Wiyung
Jl. Raya Lidah Wetan No. 30a
di
Surabaya

Dengan ini kami beritahukan bahwa dalam rangka menyelesaikan skripsi pada jenjang Strata Satu (S-1) Fakultas Teknik Universitas Negeri Surabaya, mahasiswa diwajibkan melakukan kegiatan survei/penelitian, observasi, interview, pengumpulan data, dan percobaan bahan .

Sehubungan dengan itu kami mohon bantuan Saudara berkenan memberikan ijin kepada mahasiswa kami untuk melakukan kegiatan tersebut pada lembaga/perusahaan/instansi yang Saudara pimpin. Sebagai bahan pertimbangan bersama ini kami lampirkan proposal kegiatan dimaksud.
Adapun data mahasiswa tersebut adalah sebagai berikut :

Nama	:	**Ahmad Hafid Abdullaah**
NIM	:	16050524015
Program Studi	:	S-1 Pend. Teknik Mesin
Jurusan	:	Teknik Mesin
No. Telepon/Hp.	:	085385236332
Judul Skripsi	:	Evaluasi Pembelajaran Kurikulum Integrated Pada Mata Pelajaran Produktif Kompetensi Keahlian Teknik Kendaraan Ringan Di SMK Negeri 2 Surabaya

Dosen Pembimbing : **Dr. A. Grummy Wailanduw, M.Pd., M.T.**
NIP : 196208231986011001

Demikian atas perhatian, bantuan, dan kerjasama yang baik kami sampaikan terima kasih.

Wakil Dekan
Bidang Akademik,

Drs. Edy Sulistiyo, M.Pd.
NIP 196[illegible]201991031005

Tembusan:
- Ketua Jurusan Teknik Mesin

Honda

KEMENTERIAN PENDIDIKAN DAN KEBUDAYAAN
UNIVERSITAS NEGERI SURABAYA
FAKULTAS TEKNIK
Kampus Ketintang, Jalan Ketintang, Surabaya 60231
Telepon: (6231-8280009 pes, 500-510, Faksimil : (6231-8280756
Laman : https://ft.unesa.ac.id, email : ft@unesa.ac.id

Nomor : B/13537 /UN38.5/PP.11.01/2020 06 MAR 2020
Lampiran : Satu eksemplar
Hal : Permohonan Ijin Melakukan Survei/Penelitian

Yth. **Kepala HRD Honda Basuki Rahmat**
Jl. Basuki Rahmat No. 33
di
Surabaya

Dengan ini kami beritahukan bahwa dalam rangka menyelesaikan skripsi pada jenjang Strata Satu (S-1) Fakultas Teknik Universitas Negeri Surabaya, mahasiswa diwajibkan melakukan kegiatan survei/penelitian, observasi, interview, pengumpulan data, dan perumusan bahan .

Sehubungan dengan itu kami mohon bantuan Saudara berkenan memberikan ijin kepada mahasiswa kami untuk melakukan kegiatan tersebut pada lembaga/perusahaan/instansi yang Saudara pimpin.
Sebagai bahan pertimbangan bersama ini kami lampirkan proposal kegiatan dimaksud.
Adapun data mahasiswa tersebut adalah sebagai berikut :

Nama	:	**Ahmad Hafid Abdullah**
NIM	:	16050524015
Program Studi	:	S-1 Pend. Teknik Mesin
Jurusan	:	Teknik Mesin
No. Telepon/Hp.	:	085385236332
Judul Skripsi	:	Evaluasi Pembelajaran Kurikulum Integrated Pada Mata Pelajaran Produktif Kompetensi Keahlian Teknik Kendaraan Ringan di SMK Negeri 2 Surabaya
Dosen Pembimbing	:	**Dr. A. Grunnay Wailanduw, M.Pd., M.T.**
NIP	:	196208231986011001

Demikian atas perhatian, bantuan, dan kerjasama yang baik kami sampaikan terima kasih.

Wakil Dekan
Bidang Akademik,

Drs. Edy Sulistiyo, M.Pd.
NIP. 196404201991031005

Tembusan:
- Ketua Jurusan Teknik Mesin

Appendix 14 Results of Curriculum Validation in Industry

Toyota

Apabila ada kelompok pekerjaan dan langkah-langkah pekerjaan yang belum tercantum di atas silahkan isikan pada kolom di bawah ini.

No	Kelompok Pekerjaan dan Langkah-langkah Pekerjaan
1	**Pemeliharaan Mesin Kendaraan Ringan**
2	**Pemeliharaan Sasis Dan Sistem Pemindah Tenaga Kendaraan Ringan**
3	**Pemeliharaan Kelistrikan Kendaraan Ringan**

Surabaya, Desember 2019

PT. ASTRA INTERNATIONAL

(SETIAWAN)

Daihatsu

Apabila ada kelompok pekerjaan dan langkah-langkah pekerjaan yang belum tercantum di atas silahkan isikan pada kolom di bawah ini.

No	Kelompok Pekerjaan dan Langkah-langkah Pekerjaan
1	**Pemeliharaan Mesin Kendaraan Ringan**

Surabaya, Januari 2020

ASCO

Suzuki

Apabila ada kelompok pekerjaan dan langkah-langkah pekerjaan yang belum tercantum di atas silahkan isikan pada kolom di bawah ini.

No	Kelompok Pekerjaan dan Langkah-langkah Pekerjaan
1	**Pemeliharaan Mesin Kendaraan Ringan**
2.	Bisa ditambahkan mengenai materi 'tera work' di pelajaran sini.
3.	Ditambahkan materi dasar pekerjaan tetapi : Contohnya 1. PDI. (pre delivery inspection) 2. Free service berkala (standart salah satu ATPM)

Surabaya, Maret 2020

(.....)

Mitsbishi

Apabila ada kelompok pekerjaan dan langkah-langkah pekerjaan yang belum tercantum di atas silahkan isikan pada kolom di bawah ini.

No	Kelompok Pekerjaan dan Langkah-langkah Pekerjaan
1	**Pemeliharaan Mesin Kendaraan Ringan**
	Perkenalan service quick /MQP Mengikuti teknologi perkembangan dunia otomotif seperti : a. T-CM b) CMS c) HLA DLL

Surabaya, Maret 2020

(.....)

Honda

Apabila ada kelompok pekerjaan dan langkah-langkah pekerjaan yang belum tercantum di atas silahkan isikan pada kolom di bawah ini:

No	Kelompok Pekerjaan dan Langkah-langkah Pekerjaan
1	**Pemeliharaan Mesin Kendaraan Ringan**

Surabaya, Maret 2020

(Sugeng Purwanto)

Appendix 15 Results of Recapitulation of Validation in Industry

HASIL VALIDASI KURIKULUM DI BENGKEL MOBIL (ATPM)

BENGKEL MOBIL (ATPM)	KOMPETENSI DASAR PEMELIHARAAN MESIN KENDARAAN RINGAN KELAS XI															X	Xi
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15		
TOYOTA	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	15	15
DAIHATSU	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	15	15
SUZUKI	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	15	15
HONDA	1	1	1	0	1	1	1	1	1	0	0	0	1	1	1	11	15
MITSUBISHI	1	1	1	0	1	1	1	1	1	0	0	1	1	1	1	12	15
JUMLAH																68	75
PERSENTASE %	91%																

Appendix 16 Letter of Appointment of Instrument Expert Validator

KEMENTERIAN RISET, TEKNOLOGI, DAN PENDIDIKAN TINGGI
UNIVERSITAS NEGERI SURABAYA
FAKULTAS TEKNIK
JURUSAN TEKNIK MESIN

Kampus Ketintang
Surabaya 60231
T. +62-31-8280009 pes.809,810
F. +62-31-8280786, 8294060
www.ft-unesa.ac.id

Nomor : 01065/UN38.5.4.2/PP/2019 — 20 Desember 2019
Hal : Permohonan Sebagai Validator

Dalam rangka menyelesaikan Skripsi mahasiswa diwajibkan melakukan kegiatan survey/penelitian, observasi, interview, dan pengumpulan data. Sehubungan dengan hal tersebut di atas, kami mohon bantuan Bapak/Ibu sebagai Validator mahasiswa kami ;

Nama	:	Ahmad Hafid Abdullah
NIM	:	16050524015
Program Studi	:	S1 Pendidikan Teknik Mesin Otomotif
Judul Skripsi	:	Evaluasi Pembelajaran Kurikulum Integrated Pada Mata Pelajaran Produktif Kompetensi Keahlian Teknik Kendaraan Ringan di SMK Negeri 2 Surabaya
Dosen Pembimbing	:	Dr. A. Grummy Wailanduw, M.Pd., M.T.

No.	Validator	Nama
1.	Angket dan Wawancara	1. Dr. Yunus, M.Pd. (FT) 2. Dr. Mochamad Cholik, M.Pd. (FT) 3. Mulyono, S.Pd. (SMK Negeri 2 Surabaya)
2.	Butir Soal	1. Dr. I Made Arsana, S.Pd., M.T. (FT) 2. Dr. Warju, S.Pd, S.T., M.T. (FT) 3. Sutardi, S.Pd. (SMK Negeri 2 Surabaya)

Demikian atas perhatian dan bantuannya, kami sampaikan terima kasih.

Ketua Jurusan,

Dr. Soeryanto, M.Pd.
NIP. 196004181988031003

Appendix 17 Expert Validation of Test Instruments

Expert Validation 1

VALIDASI MATERI KESELURUHAN INSTRUMEN TES

NO	Aspek yang di Nilai	Kriteria Skala Penilaian			
		1	2	3	4
1	Kejelasan petunjuk instrumen penelitian				✓
2	Pemilihan soal yang sesuai dengan kompetensi dasar				✓
3	Kejelasan indikator penilaian instrumen penelitian			✓	
4	Penggunaan bahasa dalam soal mudah dipahami oleh responden				✓

Penilaian umum

a. Instrumen penelitian ini	b. Instrumen penelitian ini
1. Tidak baik 2. Kurang baik (3) Baik 4. Sangat Baik	1. Belum dapat digunakan, masih memperlukan konsultasi 2. Dapat digunakan dengan banyak revisi (3) Dapat digunakan dengan sedikit revisi 4. Dapat digunakan tanpa revisi

Mohon menuliskan butir-butir revisi pada tempat saran dibawah ini atau menuliskan langsung pada naskah

Saran

* Soal no 4 perlu diganti alternatif jawabnya
→ tujuan adalah ke pemahaman
* Soal no. 6 diperbaiki alternatif u/ water pump
* Untuk soal no. 1 → pernyataan soal perlu diperbaiki
* Pernyataan soal u/ no 9 diperbaiki
* Soal no 11 diperbaiki lagi
→ alternatif jawaban
* Soal no. 21 → alternatif diperbaiki

Surabaya, ... 2019
Validator,

I Made Arsa

NIP. .....

Expert Validation 2

VALIDASI MATERI KESELURUHAN INSTRUMEN TES

NO	Aspek yang di Nilai	Kriteria Skala Penilaian			
		1	2	3	4
1	Kejelasan petunjuk instrumen penelitian				✓
2	Pemilihan soal yang sesuai dengan kompetensi dasar			✓	
3	Kejelasan indikator penilaian instrumen penelitian		✓		
4	Penggunaan bahasa dalam soal mudah dipahami oleh responden			✓	

Penilaian umum

a. Instrumen penelitian ini	b. Instrumen penelitian ini
1. Tidak baik 2. Kurang baik 3. Baik 4. Sangat Baik	1. Belum dapat digunakan, masih memperlukan konsultasi 2. Dapat digunakan dengan banyak revisi 3. Dapat digunakan dengan sedikit revisi 4. Dapat digunakan tanpa revisi

Mohon menuliskan butir-butir revisi pada tempat saran dibawah ini atau menuliskan langsung pada naskah.

Saran

1. Sesuaikan pertanyaan dgn alternatif gawaban yg sesuaikan.
2. Jangan membuat pertanyaan yg multi tafsir gawabannya.
3. Jangan mencantumkan alternatif gawaban yg masih ditetak benar / sedahnya.

Surabaya, 15 - 1 - 2020
Validator,

Dr. Wargu, Spd. ST, MT
NIP. 19.810328.200609100[illegible]

Expert Validation 3

VALIDASI MATERI KESELURUHAN INSTRUMEN TES

NO	Aspek yang di Nilai	Kriteria Skala Penilaian			
		1	2	3	4
1	Kejelasan petunjuk instrumen penelitian				✓
2	Pemilihan soal yang sesuai dengan kompetensi dasar				✓
3	Kejelasan indikator penilaian instrumen penelitian				✓
4	Penggunaan bahasa dalam soal mudah dipahami oleh responden				✓

Penilaian umum

a. Instrumen penelitian ini	b. Instrumen penelitian ini
1. Tidak baik	1. Belum dapat digunakan, masih memperlukan konsultasi
2. Kurang baik	2. Dapat digunakan dengan banyak revisi
3. Baik	(3) Dapat digunakan dengan sedikit revisi
(4) Sangat Baik	4. Dapat digunakan tanpa revisi

Mohon menuliskan butir-butir revisi pada tempat saran dibawah ini atau menuliskan langsung pada naskah.

Saran

.....

.....

.....

.....

Surabaya, 23 Desember 2019
Validator,

Drs. SUTARDI
NIP. 19680915 200801 1007

Appendix 18 Results of Expert Validation Recapitulation of Test Instruments

HASIL UJI VALIDASI AHLI INSTRUMEN TES SOAL

VALIDATOR	BUTIR SOAL																																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37
Dr. I Made Arsana, S.Pd., M.T.	2	2	3	2	3	2	3	3	4	3	2	3	3	3	4	3	4	3	3	3	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Dr. Warju, S.Pd, S.T., M.T.	2	2	3	2	4	2	4	3	3	4	2	4	4	1	4	4	4	4	3	4	3	3	4	4	4	3	4	4	4	3	4	4	4	4	4	4	4
Drs. Sutardi	3	4	4	3	4	3	4	4	3	3	3	4	4	4	1	4	4	4	4	3	3	4	4	4	4	3	4	4	4	4	4	4	4	4	4	4	4
Jumlah (Y)																																					
Persentase																																					

LANJUTAN

VALIDATOR	BUTIR SOAL																														X	XI
	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70		
Dr. I Made Arsana, S.Pd., M.T.	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	217	280
Dr. Warju, S.Pd, S.T., M.T.	3	2	4	4	3	3	4	4	4	4	4	4	4	4	4	4	4	4	4	3	4	4	4	4	4	4	4	4	4	4	3	4	4	254	280
Drs. Sutardi	3	3	4	4	4	4	4	4	4	4	4	4	4	4	4	3	4	3	3	4	4	4	4	3	4	4	4	4	4	4	4	4	4	265	280
Jumlah (Y)																																		726	840
Persentase	86%																																		

Appendix 19 Expert Validation of the Questionnaire Instrument

Expert Validation 1

VALIDASI MATERI KESELURUHAN INSTRUMEN ANGKET

NO	Aspek yang di Nilai	Kriteria Skala Penilaian			
		1	2	3	4
1	Kejelasan petunjuk instrumen penelitian			✓	
2	Pemilihan pernyataan yang sesuai dengan tujuan penelitian		✓		
3	Kejelasan indikator penilaian instrumen penelitian			✓	
4	Pernyataan mudah dipahami oleh responden			✓	
5	Pernyataan tidak menyinggung responden			✓	

Penilaian umum

a. Instrumen penelitian ini	b. Instrumen penelitian ini
1. Tidak baik	1. Belum dapat digunakan, masih memperlukan konsultasi
2. Kurang baik	2. Dapat digunakan dengan banyak revisi
3. Baik	(3) Dapat digunakan dengan sedikit revisi
(4) Sangat Baik	4. Dapat digunakan tanpa revisi

Mohon menuliskan butir-butir revisi pada tempat saran dibawah ini atau menuliskan langsung pada naskah

Saran

- Instrumen harus terukur.
- Mengukur 1 aspek
- jangan normatif

Surabaya, 15 Januari 2020 2019

Validator

Dr. Machamad Cholik MPd

NIP. 196004241990021001

Lembar Validasi Instrumen

Expert Validation 2

VALIDASI MATERI KESELURUHAN INSTRUMEN ANGKET

NO	Aspek yang di Nilai	Kriteria Skala Penilaian			
		1	2	3	4
1	Kejelasan petunjuk instrumen penelitian				✓
2	Pemilihan pernyataan yang sesuai dengan tujuan penelitian				✓
3	Kejelasan indikator penilaian instrumen penelitian				✓
4	Pernyataan mudah dipahami oleh responden				✓
5	Pernyataan tidak menyinggung responden				✓

Penilaian umum

a. Instrumen penelitian ini	b. Instrumen penelitian ini
1. Tidak baik 2. Kurang baik 3. Baik 4. Sangat Baik	1. Belum dapat digunakan, masih memperlukan konsultasi 2. Dapat digunakan dengan banyak revisi 3. Dapat digunakan dengan sedikit revisi 4. Dapat digunakan tanpa revisi

Mohon menuliskan butir-butir revisi pada tempat saran dibawah ini atau menuliskan langsung pada naskah.

Saran

- Beberapa pernyataan instrumen ada yg tdk mudah dipahami dan ada salah ketik
- tata tulisnya diperbaikan, perhatikan penggunaan kata depan "di"

Surabaya, ... 2019
Validator,

Yunus
NIP. 196504231992031001

Expert Validation 3

VALIDASI MATERI KESELURUHAN INSTRUMEN ANGKET

NO	Aspek yang di Nilai	Kriteria Skala Penilaian			
		1	2	3	4
1	Kejelasan petunjuk instrumen penelitian				✓
2	Pemilihan pernyataan yang sesuai dengan tujuan penelitian				✓
3	Kejelasan indikator penilaian instrumen penelitian				✓
4	Pernyataan mudah dipahami oleh responden				✓
5	Pernyataan tidak menyinggung responden				✓

Penilaian umum

a. Instrumen penelitian ini	b. Instrumen penelitian ini
1. Tidak baik	1. Belum dapat digunakan, masih memperlukan konsultasi
2. Kurang baik	2. Dapat digunakan dengan banyak revisi
3. Baik	(3) Dapat digunakan dengan sedikit revisi
(4) Sangat Baik	4. Dapat digunakan tanpa revisi

Mohon menuliskan butir-butir revisi pada tempat saran dibawah ini atau menuliskan langsung pada naskah.

Saran

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Surabaya, ... 2020

Validator,

Drs. SUTARDI

NIP. 19620915 200801 1007

Lembar Validasi Instrumen

Appendix 20 Results of the Questionnaire Instrument Expert Validation Recapitulation

HASIL UJI VALIDASI AHLI MATERI INSTRUMEN KUESIONER

VALIDATOR	ITEM																												X	Xi
	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8		
AHLI 1	4	3	1	3	3	3	3	4	2	2	3	3	4	4	4	4	3	4	4	4	3	3	3	4	2	4	3	4	4	4	139	160
AHLI 2	4	3	1	3	3	4	3	4	2	2	3	3	4	4	4	4	3	3	4	4	2	3	3	4	2	4	3	4	4	4	138	160
AHLI 3	4	3	4	4	3	4	4	4	3	3	3	3	4	4	4	3	3	4	4	4	3	3	3	4	3	4	4	4	3	3	136	160
JUMLAH (Y)																															413	480
PERSENTASE	86%																															

KETERANGAN:

VALIDATOR	NAMA
AHLI 1	Dr. Yunus, M. Pd.
AHLI 2	Dr. Muchamad Cholik, M.Pd.
AHLI 3	Drs. Sutardi

Appendix 21 Expert Validation of Interview Instruments

Expert Validation 1

VALIDASI MATERI KESELURUHAN INSTRUMEN WAWANCARA

NO	Aspek yang di Nilai	Kriteria Skala Penilaian			
		1	2	3	4
1	Kejelasan petunjuk instrumen penelitian			✓	
2	Pemilihan pertanyaan yang sesuai dengan tujuan penelitian			✓	
3	Kejelasan indikator penilaian instrumen penelitian		✓		
4	Pertanyaan mudah dipahami oleh responden			✓	
5	Pertanyaan tidak menyinggung responden			✓	

Penilaian umum

a. Instrumen penelitian ini	b. Instrumen penelitian ini
1. Tidak baik	1. Belum dapat digunakan, masih memerlukan konsultasi
2. Kurang baik	2. Dapat digunakan dengan banyak revisi
3. Baik	(3) Dapat digunakan dengan sedikit revisi
(4) Sangat Baik	4. Dapat digunakan tanpa revisi

Mohon menuliskan butir-butir revisi pada tempat saran dibawah ini atau menuliskan langsung pada naskah.

Saran

- Jangan normatif
- Harus terukur.

Surabaya, 15 Jan 2020 2019

Validator,

Dr. Mochamad Cholik M.Pd

NIP. 196004241990032002

Lembar Validasi Instrumen

Expert Validation 2

VALIDASI MATERI KESELURUHAN INSTRUMEN WAWANCARA

NO	Aspek yang di Nilai	Kriteria Skala Penilaian			
		1	2	3	4
1	Kejelasan petunjuk instrumen penelitian				✓
2	Pemilihan pertanyaan yang sesuai dengan tujuan penelitian				✓
3	Kejelasan indikator penilaian instrumen penelitian				✓
4	Pertanyaan mudah dipahami oleh responden				✓
5	Pertanyaan tidak menyinggung responden				✓

Penilaian umum

a. Instrumen penelitian ini	b. Instrumen penelitan ini
1. Tidak baik	1. Belum dapat digunakan, masih memperlukan konsultasi
2. Kurang baik	2. Dapat digunakan dengan banyak revisi
3. Baik	3. Dapat digunakan dengan sedikit revisi
4. Sangat Baik	4. Dapat digunakan tanpa revisi

Mohon menuliskan butir-butir revisi pada tempat saran dibawah ini atau menuliskan langsung pada naskah.

Saran

- Tata tulisan direvisi sesuai EYD

Surabaya, ... 2019

Validator,

Yudus

NIP. 196504231998031001

Lembar Validasi Instrumen

Expert Validation 3

VALIDASI MATERI KESELURUHAN INSTRUMEN WAWANCARA

NO	Aspek yang di Nilai	Kriteria Skala Penilaian			
		1	2	3	4
1	Kejelasan petunjuk instrumen penelitian				✓
2	Pemilihan pertanyaan yang sesuai dengan tujuan penelitian				✓
3	Kejelasan indikator penilaian instrumen penelitian			✓	
4	Pertanyaan mudah dipahami oleh responden				✓
5	Pertanyaan tidak menyinggung responden				✓

Penilaian umum

a. Instrumen penelitian ini	b. Instrumen penelitian ini
1. Tidak baik	1. Belum dapat digunakan, masih memperlukan konsultasi
2. Kurang baik	2. Dapat digunakan dengan banyak revisi
3. Baik	(3) Dapat digunakan dengan sedikit revisi
(4) Sangat Baik	4. Dapat digunakan tanpa revisi

Mohon menuliskan butir-butir revisi pada tempat saran dibawah ini atau menuliskan langsung pada naskah

Saran

.....

.....

.....

.....

Surabaya, ... 2020
Validator,

Drs. SUTARDI
NIP. 19680915 200801 1007

HASIL UJI VALIDASI AHLI MATERI INSTRUMEN WAWANCARA

VALIDATOR	ITEM																																X	Xi
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34		
AHLI 1	4	3	3	4	3	4	4	4	4	3	4	4	4	4	4	4	3	3	4	4	3	3	3	4	3	3	3	3	4	4	4	4	3	3	121	136
AHLI 2	3	3	4	4	3	4	4	3	3	3	3	3	3	3	3	4	3	3	3	4	4	4	3	3	3	3	3	3	3	3	4	3	4	4	113	136
AHLI 3	4	4	3	4	3	3	3	4	4	4	4	3	4	4	4	4	3	4	4	4	3	3	4	4	4	4	4	4	3	3	3	4	4	4	125	136
JUMLAH (∑)																																			359	408
PERSENTASE	88%																																			

KETERANGAN:

VALIDATOR	NAMA
AHLI 1	Dr. Yunus, M. Pd.
AHLI 2	Dr. Mochamad Cholik, M. Pd.
AHLI 3	Drs. Sutardi

Appendix 23 List of Respondents in Testing Questionnaire Instruments

KEMENTERIAN PENDIDIKAN DAN KEBUDAYAAN
UNIVERSITAS NEGERI SURABAYA
FAKULTAS TEKNIK
JURUSAN TEKNIK MESIN

Kampus Ketintang
Surabaya
T. +62-31-8280009 pes.600.610
F. +62 31 8280796, 8294060
www.fi-unesa.ac.id

DAFTAR RESPONDEN INSTRUMEN TES SOAL
DI SMK NEGERI 2 SURABAYA

Nama : Ahmad Hafid Abdullah
Program Studi : S1 Pendidikan Teknik Mesin
Juduk Skripsi : Evaluasi Pembelajaran Kurikulum *Integrated* pada Mata Pelajaran Produktif Kompetensi Keahlian Teknik Kendaraan Ringan di SMK Negeri 2 Surabaya

NO	NAMA	KELAS	TTD
1	Abdul KODER Z	XII TKRO2	
2	MAHETA CAPUTRA	12 TKR 2	
3	HILMI ARIO R.	12 TKR 2	
4	Yogo Julagrono	12 TKRO 2	
5	Moch. Syahrul	XII TKRO 2	
6	Rizal Rachmad Santoso	XII TKRO2	
7	M. Dappa Fatah Rafaq	XII TKRO2	
8	Bagus Sajiwo	XII. TKRO2	
9	Maulana Wirayuda F.	XII/TKRO 2	
10	M. ALI HUSIN	XII TKRO2	
11	M. ANGGA PRADANA PUTRA	XII TKRO2	
12	Muhammad Walid ASYROFUDDIN	XII TKRO2	
13	Rio Cahya Pratama	XII TKRO 2	
14	Moh. Shodiq Tri Afandy	XII TKRO 2	
15	CHOIRUL ANAM	XII TKRO2	

Appendix 24 Test Results of Test Question Instruments

The Validity of Test Question Instruments

UJI VALIDITAS RESONDEN TES SOAL

BUTIR SOAL	RESPONDEN															SKOR	VALIDITAS	KETERANGAN
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15			
1	0	1	1	1	0	1	1	1	1	0	1	1	0	1	1	11	0,69	Tinggi
2	1	1	0	1	1	1	0	1	1	0	1	1	1	0	1	11	0,45	Cukup
3	0	1	0	0	0	1	0	1	0	0	0	1	0	0	0	4	0,51	Cukup
4	0	0	0	1	0	1	0	1	0	0	0	1	0	0	0	4	0,52	Cukup
5	0	1	1	1	1	0	0	1	1	0	1	1	0	1	1	10	0,52	Cukup
6	0	1	1	1	0	1	1	1	1	1	1	1	1	1	1	13	0,49	Cukup
7	1	1	1	1	0	1	0	1	1	1	1	1	0	0	1	11	0,53	Cukup
8	1	1	0	1	0	1	0	0	1	0	1	1	1	1	1	10	0,56	Cukup
9	0	1	0	1	1	1	0	1	1	0	1	1	1	1	1	11	0,70	Tinggi
10	1	1	0	0	0	1	1	1	1	1	1	1	0	1	1	11	0,44	Cukup
11	0	1	0	0	0	1	0	1	1	1	0	1	1	1	1	9	0,45	Cukup
12	0	0	1	1	0	1	1	1	1	0	1	1	0	1	0	9	0,41	Cukup
13	1	1	0	1	0	1	0	1	1	0	1	1	0	1	1	10	0,86	Sangat tinggi
14	0	1	1	1	1	1	0	1	1	0	0	1	0	1	1	10	0,52	Cukup
15	0	1	1	1	0	1	0	1	1	1	1	0	0	0	0	8	0,43	Cukup
16	0	1	0	1	0	0	0	0	1	0	0	0	0	0	0	3	0,46	Cukup
17	0	1	0	1	1	1	1	1	1	0	1	1	0	1	1	11	0,69	Tinggi
18	1	0	0	1	0	1	0	1	1	1	1	1	1	1	1	11	0,47	Cukup
19	1	1	0	1	1	1	0	1	1	0	1	1	1	1	1	12	0,57	Cukup
20	0	1	0	1	0	1	1	1	1	1	0	1	1	1	1	11	0,44	Cukup
21	0	1	1	1	0	1	0	1	1	0	1	1	0	0	0	8	0,64	Tinggi
22	0	1	0	1	1	1	0	1	1	0	1	0	1	1	1	10	0,54	Cukup
23	0	1	0	1	1	1	0	1	0	0	0	1	0	1	1	8	0,55	Cukup
24	1	1	0	1	0	1	0	1	1	1	1	1	0	1	1	11	0,80	Tinggi
25	1	1	0	1	0	1	0	0	1	0	1	1	1	1	1	10	0,56	Cukup
26	0	1	0	1	0	1	1	0	1	0	1	0	0	1	1	8	0,57	Cukup
27	0	1	1	1	1	1	0	1	0	0	1	1	0	1	0	9	0,41	Cukup
28	0	0	0	1	0	1	0	1	1	0	1	0	1	1	1	8	0,57	Cukup
29	0	1	0	0	0	1	1	1	1	1	1	0	0	1	1	9	0,45	Cukup
30	0	0	1	1	0	1	0	1	1	0	1	1	1	1	1	10	0,52	Cukup
31	0	0	1	1	0	1	0	1	1	1	1	1	0	0	1	9	0,52	Cukup
32	0	1	1	1	0	1	0	0	1	1	1	1	1	1	1	11	0,45	Cukup
33	1	1	0	1	0	0	0	1	1	0	1	1	1	0	1	9	0,48	Cukup
34	0	1	0	1	0	0	0	1	1	0	0	0	0	0	0	4	0,54	Cukup
35	1	1	0	1	1	1	0	1	1	1	1	1	0	0	1	11	0,53	Cukup
36	0	1	1	1	0	1	1	1	0	1	1	1	0	1	1	11	0,44	Cukup
37	0	1	0	1	0	1	0	0	1	0	0	1	1	1	1	8	0,56	Cukup
38	0	0	0	1	0	0	0	1	1	1	1	1	0	1	1	8	0,63	Tinggi
39	0	1	1	1	1	1	0	1	0	1	1	1	0	1	1	11	0,44	Cukup
40	1	1	1	1	0	0	0	1	1	0	1	1	0	1	1	10	0,55	Cukup
41	0	1	0	0	0	1	0	1	1	1	1	0	0	1	0	7	0,53	Cukup
42	1	1	0	1	0	1	0	0	1	1	1	1	1	1	1	11	0,48	Cukup
43	0	1	0	1	1	1	1	1	0	1	1	1	0	1	1	11	0,44	Cukup
44	0	1	0	0	0	0	0	1	1	0	1	0	0	0	0	4	0,57	Cukup
45	0	1	0	1	0	0	0	1	0	0	0	1	0	0	0	4	0,53	Cukup
46	1	1	1	1	0	1	1	1	1	1	1	1	0	1	1	13	0,51	Cukup

BUTIR	RESPONDEN															SKOR	VALIDITAS	KETERANGAN
SOAL	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15			
47	0	0	0	1	0	1	0	0	0	0	1	0	0	0	1	4	0,52	Cukup
48	1	0	0	1	1	1	0	1	1	0	1	1	0	0	1	9	0,46	Cukup
49	1	1	0	1	0	1	0	1	1	1	1	0	0	1	0	9	0,52	Cukup
50	0	1	1	0	0	1	0	1	1	1	1	1	0	1	0	9	0,47	Cukup
51	0	0	0	1	0	1	0	0	0	0	1	0	0	1	0	4	0,48	Cukup
52	0	1	0	1	0	1	0	0	1	1	1	1	1	1	0	9	0,50	Cukup
53	0	1	0	1	0	1	1	0	1	1	1	1	0	1	1	10	0,61	Tinggi
54	1	0	0	1	1	1	0	1	1	0	1	1	0	0	1	9	0,46	Cukup
55	0	1	1	1	0	0	0	1	1	0	0	1	0	1	1	8	0,55	Cukup
56	0	1	0	0	0	1	1	1	1	1	1	1	0	1	1	10	0,58	Cukup
57	0	1	0	1	0	1	0	0	0	1	1	1	0	1	1	8	0,64	Tinggi
58	0	1	0	1	0	0	0	1	0	0	0	0	0	0	1	4	0,52	Cukup
59	1	1	0	1	1	1	1	1	1	0	1	1	0	1	1	12	0,56	Cukup
60	0	1	0	1	1	1	1	1	1	0	1	0	0	1	1	10	0,53	Cukup
61	0	1	0	1	0	0	0	1	1	0	1	1	1	0	1	8	0,62	Tinggi
62	0	1	0	1	0	1	1	0	1	1	1	1	0	0	1	9	0,52	Cukup
63	0	1	0	1	0	1	1	1	1	1	1	1	1	1	0	11	0,48	Cukup
64	1	1	0	0	0	1	0	1	1	1	1	1	0	1	1	10	0,61	Tinggi
65	0	1	0	1	1	0	0	1	1	0	1	1	0	1	1	9	0,69	Tinggi
66	0	1	0	1	1	1	1	1	0	0	1	1	0	0	1	9	0,45	Cukup
67	1	0	0	1	0	1	0	1	1	0	1	1	1	1	1	10	0,55	Cukup
68	0	1	1	1	0	0	1	1	1	0	1	1	0	1	1	10	0,52	Cukup
69	1	1	0	1	1	1	0	1	1	0	1	1	0	1	1	11	0,71	Tinggi
70	1	1	0	0	0	1	0	1	1	1	1	1	0	1	1	10	0,61	Tinggi
IMI	22	58	19	60	19	57	19	57	57	29	58	56	20	50	54		0,54	Cukup

Test Question Instrument Reliability

UJI RELIABILITAS TES SOAL

BTR SOAL	RESPONDEN															JML BNR (Y)	Y²	JML SLH
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15			
1	0	1	1	1	0	1	1	1	1	0	1	1	0	1	1	11	121	4
2	1	1	0	1	1	1	0	1	1	0	1	1	1	0	1	11	121	4
3	0	1	0	0	0	1	0	1	0	0	0	1	0	0	0	4	16	11
4	0	0	0	1	0	1	0	1	0	0	0	1	0	0	0	4	16	11
5	0	1	1	1	1	0	0	1	1	0	1	1	0	1	1	10	100	5
6	0	1	1	1	0	1	1	1	1	1	1	1	1	1	1	13	169	2
7	1	1	1	1	0	1	0	1	1	1	1	1	0	0	1	11	121	4
8	1	1	0	1	0	1	0	0	1	0	1	1	1	1	1	10	100	5
9	0	1	0	1	1	1	0	1	1	0	1	1	1	1	1	11	121	4
10	1	1	0	0	0	1	1	1	1	1	1	1	0	1	1	11	121	4
11	0	1	0	0	0	1	0	1	1	1	0	1	1	1	1	9	81	6
12	0	0	1	1	0	1	1	1	1	0	1	1	0	1	0	9	81	6
13	1	1	0	1	0	1	0	1	1	0	1	1	0	1	1	10	100	5
14	0	1	1	1	1	1	0	1	1	0	0	1	0	1	1	10	100	5
15	0	1	1	1	0	1	0	1	1	1	1	0	0	0	0	8	64	7
16	0	1	0	1	0	0	0	0	1	0	0	0	0	0	0	3	9	12
17	0	1	0	1	1	1	1	1	1	0	1	1	0	1	1	11	121	4
18	1	0	0	1	0	1	0	1	1	1	1	1	1	1	1	11	121	4
19	1	1	0	1	1	1	0	1	1	0	1	1	1	1	1	12	144	3
20	0	1	0	1	0	1	1	1	1	1	0	1	1	1	1	11	121	4
21	0	1	1	1	0	1	0	1	1	0	1	1	0	0	0	8	64	7
22	0	1	0	1	1	1	0	1	1	0	1	0	1	1	1	10	100	5
23	0	1	0	1	1	1	0	1	0	0	0	1	0	1	1	8	64	7
24	1	1	0	1	0	1	0	1	1	1	1	1	0	1	1	11	121	4
25	1	1	0	1	0	1	0	0	1	0	1	1	1	1	1	10	100	5
26	0	1	0	1	0	1	1	0	1	0	1	0	0	1	1	8	64	7
27	0	1	1	1	1	1	0	1	0	0	1	1	0	1	0	9	81	6
28	0	0	0	1	0	1	0	1	1	0	1	0	1	1	1	8	64	7
29	0	1	0	0	0	1	1	1	1	1	1	0	0	1	1	9	81	6
30	0	0	1	1	0	1	0	1	1	0	1	1	1	1	1	10	100	5
31	0	0	1	1	0	1	0	1	1	1	1	1	0	0	1	9	81	6
32	0	1	1	1	0	1	0	0	1	1	1	1	1	1	1	11	121	4
33	1	1	0	1	0	0	0	1	1	0	1	1	1	0	1	9	81	6
34	0	1	0	1	0	0	0	1	1	0	0	0	0	0	0	4	16	11
35	1	1	0	1	1	1	0	1	1	1	1	1	0	0	1	11	121	4
36	0	1	1	1	0	1	1	1	0	1	1	1	0	1	1	11	121	4
37	0	1	0	1	0	1	0	0	1	0	0	1	1	1	1	8	64	7
38	0	0	0	1	0	0	0	1	1	1	1	1	0	1	1	8	64	7
39	0	1	1	1	1	1	0	1	0	1	1	1	0	1	1	11	121	4
40	1	1	1	1	0	0	0	1	1	0	1	1	0	1	1	10	100	5
41	0	1	0	0	0	1	0	1	1	1	1	0	0	1	0	7	49	8
42	1	1	0	1	0	1	0	0	1	1	1	1	1	1	1	11	121	4
43	0	1	0	1	1	1	1	1	0	1	1	1	0	1	1	11	121	4
44	0	1	0	0	0	0	0	1	1	0	1	0	0	0	0	4	16	11
45	0	1	0	1	0	0	0	1	0	0	0	1	0	0	0	4	16	11
46	1	1	1	1	0	1	1	1	1	1	1	1	0	1	1	13	169	2
47	0	0	0	1	0	1	0	0	0	0	1	0	0	0	1	4	16	11
48	1	0	0	1	1	1	0	1	1	0	1	1	0	0	1	9	81	6
49	1	1	0	1	0	1	0	1	1	1	1	0	0	1	0	9	81	6
50	0	1	1	0	0	1	0	1	1	1	1	1	0	1	0	9	81	6

BTR SOAL	RESPONDEN															JML BNR (Y)	Y^2	JML SLH
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15			
S1	0	0	0	1	0	1	0	0	0	0	1	0	0	1	0	4	16	11
S2	0	1	0	1	0	1	0	0	1	1	1	1	1	1	0	9	81	6
S3	0	1	0	1	0	1	1	0	1	1	1	1	0	1	1	10	100	5
S4	1	0	0	1	1	1	0	1	1	0	1	1	0	0	1	9	81	6
S5	0	1	1	1	0	0	0	1	1	0	0	1	0	1	1	8	64	7
S6	0	1	0	0	0	1	1	1	1	1	1	1	0	1	1	10	100	5
S7	0	1	0	1	0	1	0	0	0	1	1	1	0	1	1	8	64	7
S8	0	1	0	1	0	0	0	1	0	0	0	0	0	0	1	4	16	11
S9	1	1	0	1	1	1	1	1	1	0	1	1	0	1	1	12	144	3
S10	0	1	0	1	1	1	1	1	1	0	1	0	0	1	1	10	100	5
S11	0	1	0	1	0	0	0	1	1	0	1	1	1	0	1	8	64	7
S12	0	1	0	1	0	1	1	0	1	1	1	1	0	0	1	9	81	6
S13	0	1	0	1	0	1	1	1	1	1	1	1	1	1	0	11	121	4
S14	1	1	0	0	0	1	0	1	1	1	1	1	0	1	1	10	100	5
S15	0	1	0	1	1	0	0	1	1	0	1	1	0	1	1	9	81	6
S16	0	1	0	1	1	1	1	1	0	0	1	1	0	0	1	9	81	6
S17	1	0	0	1	0	1	0	1	1	0	1	1	1	1	1	10	100	5
S18	0	1	1	1	0	0	1	1	1	0	1	1	0	1	1	10	100	5
S19	1	1	0	1	1	1	0	1	1	0	1	1	0	1	1	11	121	4
S20	1	1	0	0	0	1	0	1	1	1	1	1	0	1	1	10	100	5
																		415
$\sum Y^2$																	6143	
$\sum (X)$	22	58	19	60	19	57	19	57	57	29	58	56	20	50	54	635		
(X^2)	484	3364	361	3600	361	3249	361	3249	3249	841	3364	3136	400	2500	2916	31435		

Langkah 1. Mencari jumlah kuadrat responder

JK(r) 65,05

Langkah 2. Mencari jumlah kuadart item

JK(I) 25,51

Langkah 3 Mencari jumlah kuadart total

JK(t) 250,98

Langkah 4. Mencari jumlah kuadart sisa

JK(S) 160,42

Langkah 5. Mencari varians responden dan varian sisa dengan tabel F

TABEL I			
Sumber Variasi	Jml Kuadrat	d.B	Varians
Responden	68,26	14	4,52
Item	13,7	69	0,20
Sisa	167,4	2016	0,08
Total	244,36	2099	0,12

Langkah 6. Memasukan ke dalam rumus

r11 RELIABILITAS	0,98	Sangat tinggi

Level of Difficulty

HASIL TINGKAT KESUKARAN TES SOAL

BTR SOAL	RESPONDEN															JML JWB BENAR	TINGKAT KESUKARAN	KETERANGAN
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15			
1	0	1	1	1	0	1	1	1	1	0	1	1	0	1	1	11	0,73	MUDAH
2	1	1	0	1	1	1	0	1	1	0	1	1	1	0	1	11	0,73	MUDAH
3	0	1	0	0	0	1	0	1	0	0	0	1	0	0	0	4	0,27	SULIT
4	0	0	0	1	0	1	0	1	0	0	0	1	0	0	0	4	0,27	SULIT
5	0	1	1	1	1	0	0	1	1	0	1	1	0	1	1	10	0,67	SEDANG
6	0	1	1	1	0	1	1	1	1	1	1	1	1	1	1	13	0,87	MUDAH
7	1	1	1	1	0	1	0	1	1	1	1	1	0	0	1	11	0,73	MUDAH
8	1	1	0	1	0	1	0	0	1	0	1	1	1	1	1	10	0,67	SEDANG
9	0	1	0	1	1	1	0	1	1	0	1	1	1	1	1	11	0,73	MUDAH
10	1	1	0	0	0	1	1	1	1	1	1	1	0	1	1	11	0,73	MUDAH
11	0	1	0	0	0	1	0	1	1	1	0	1	1	1	1	9	0,60	SEDANG
12	0	0	1	1	0	1	1	1	1	0	1	1	0	1	0	9	0,60	SEDANG
13	1	1	0	1	0	1	0	1	1	0	1	1	0	1	1	10	0,67	SEDANG
14	0	1	1	1	1	1	0	1	1	0	0	1	0	1	1	10	0,67	SEDANG
15	0	1	1	1	0	1	0	1	1	1	1	0	0	0	0	8	0,53	SEDANG
16	0	1	0	1	0	0	0	0	1	0	0	0	0	0	0	3	0,20	SULIT
17	0	1	0	1	1	1	1	1	1	0	1	1	0	1	1	11	0,73	MUDAH
18	1	0	0	1	0	1	0	1	1	1	1	1	1	1	1	11	0,73	MUDAH
19	1	1	0	1	1	1	0	1	1	0	1	1	1	1	1	12	0,80	MUDAH
20	0	1	0	1	0	1	1	1	1	1	0	1	1	1	1	11	0,73	MUDAH
21	0	1	1	1	0	1	0	1	1	0	1	1	0	0	0	8	0,53	SEDANG
22	0	1	0	1	1	1	0	1	1	0	1	0	1	1	1	10	0,67	SEDANG
23	0	1	0	1	1	1	0	1	0	0	0	1	0	1	1	8	0,53	SEDANG
24	1	1	0	1	0	1	0	1	1	1	1	1	0	1	1	11	0,73	MUDAH
25	1	1	0	1	0	1	0	0	1	0	1	1	1	1	1	10	0,67	SEDANG
26	0	1	0	1	0	1	1	0	1	0	1	0	0	1	1	8	0,53	SEDANG
27	0	1	1	1	1	1	0	1	0	0	1	1	0	1	0	9	0,60	SEDANG
28	0	0	0	1	0	1	0	1	1	0	1	0	1	1	1	8	0,53	SEDANG
29	0	1	0	0	0	1	1	1	1	1	1	0	0	1	1	9	0,60	SEDANG
30	0	0	1	1	0	1	0	1	1	0	1	1	1	1	1	10	0,67	SEDANG
31	0	0	1	1	0	1	0	1	1	1	1	1	0	0	1	9	0,60	SEDANG
32	0	1	1	1	0	1	0	0	1	1	1	1	1	1	1	11	0,73	MUDAH
33	1	1	0	1	0	0	0	1	1	0	1	1	1	0	1	9	0,60	SEDANG
34	0	1	0	1	0	0	0	1	1	0	0	0	0	0	0	4	0,27	SULIT
35	1	1	0	1	1	1	0	1	1	1	1	1	0	0	1	11	0,73	MUDAH
36	0	1	1	1	0	1	1	1	0	1	1	1	0	1	1	11	0,73	MUDAH
37	0	1	0	1	0	1	0	0	1	0	0	1	1	1	1	8	0,53	SEDANG
38	0	0	0	1	0	0	0	1	1	1	1	1	0	1	1	8	0,53	SEDANG
39	0	1	1	1	1	1	0	1	0	1	1	1	0	1	1	11	0,73	MUDAH
40	1	1	1	1	0	0	0	1	1	0	1	1	0	1	1	10	0,67	SEDANG
41	0	1	0	0	0	1	0	1	1	1	1	0	0	1	0	7	0,47	SEDANG
42	1	1	0	1	0	1	0	0	1	1	1	1	1	1	1	11	0,73	MUDAH
43	0	1	0	1	1	1	1	1	0	1	1	1	0	1	1	11	0,73	MUDAH
44	0	1	0	0	0	0	0	1	1	0	1	0	0	0	0	4	0,27	SULIT
45	0	1	0	1	0	0	0	1	0	0	0	1	0	0	0	4	0,27	SULIT

BTR	RESPONDEN															JML JWB	TINGKAT	KETERANGAN
SOAL	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	BENAR	KESUKARAN	
46	1	1	1	1	0	1	1	1	1	1	1	1	0	1	1	13	0,87	MUDAH
47	0	0	0	1	0	1	0	0	0	0	1	0	0	0	1	4	0,27	SULIT
48	1	0	0	1	1	1	0	1	1	0	1	1	0	0	1	9	0,60	SEDANG
49	1	1	0	1	0	1	0	1	1	1	1	0	0	1	0	9	0,60	SEDANG
50	0	1	1	0	0	1	0	1	1	1	1	1	0	1	0	9	0,60	SEDANG
51	0	0	0	1	0	1	0	0	0	0	1	0	0	1	0	4	0,27	SULIT
52	0	1	0	1	0	1	0	0	1	1	1	1	1	1	0	9	0,60	SEDANG
53	0	1	0	1	0	1	1	0	1	1	1	1	0	1	1	10	0,67	SEDANG
54	1	0	0	1	1	1	0	1	1	0	1	1	0	0	1	9	0,60	SEDANG
55	0	1	1	1	0	0	0	1	1	0	0	1	0	1	1	8	0,53	SEDANG
56	0	1	0	0	0	1	1	1	1	1	1	1	0	1	1	10	0,67	SEDANG
57	0	1	0	1	0	1	0	0	0	1	1	1	0	1	1	8	0,53	SEDANG
58	0	1	0	1	0	0	0	1	0	0	0	0	0	0	1	4	0,27	SULIT
59	1	1	0	1	1	1	1	1	1	0	1	1	0	1	1	12	0,80	MUDAH
60	0	1	0	1	1	1	1	1	1	0	1	0	0	1	1	10	0,67	SEDANG
61	0	1	0	1	0	0	0	1	1	0	1	1	1	0	1	8	0,53	SEDANG
62	0	1	0	1	0	1	1	0	1	1	1	1	0	0	1	9	0,60	SEDANG
63	0	1	0	1	0	1	1	1	1	1	1	1	1	1	0	11	0,73	MUDAH
64	1	1	0	0	0	1	0	1	1	1	1	1	0	1	1	10	0,67	SEDANG
65	0	1	0	1	1	0	0	1	1	0	1	1	0	1	1	9	0,60	SEDANG
66	0	1	0	1	1	1	1	1	0	0	1	1	0	0	1	9	0,60	SEDANG
67	1	0	0	1	0	1	0	1	1	0	1	1	1	1	1	10	0,67	SEDANG
68	0	1	1	1	0	0	1	1	1	0	1	1	0	1	1	10	0,67	SEDANG
69	1	1	0	1	1	1	0	1	1	0	1	1	0	1	1	11	0,73	MUDAH
70	1	1	0	0	0	1	0	1	1	1	1	1	0	1	1	10	0,67	SEDANG
Rata-rata																	0,60	SEDANG

Discernment

HASIL UJI DAYA PEMBEDA TES SOAL

BUTIR SOAL	RESPONDEN																DAYA PEMBEDA	KET
	4	2	11	6	8	9	12	JML BNR K. ATAS	15	14	10	1	13	3	5	7	JML BNR K. BWH	
1	1	1	1	1	1	1	1	7	1	1	0	0	0	1	0	1	4	0,50	BAIK
2	1	1	1	1	1	1	1	7	1	0	0	1	1	0	1	0	4	0,50	BAIK
3	0	1	0	1	1	0	1	4	0	0	0	0	0	0	0	0	0	0,57	BAIK
4	1	0	0	1	1	0	1	4	0	0	0	0	0	0	0	0	0	0,57	BAIK
5	1	1	1	0	1	1	1	6	1	1	0	0	0	1	1	0	4	0,36	CUKUP
6	1	1	1	1	1	1	1	7	1	1	1	0	1	1	0	1	6	0,25	CUKUP
7	1	1	1	1	1	1	1	7	1	0	1	1	0	1	0	0	4	0,50	BAIK
8	1	1	1	1	0	1	1	6	1	1	0	1	1	0	0	0	4	0,36	CUKUP
9	1	1	1	1	1	1	1	7	1	1	0	0	1	0	1	0	4	0,50	BAIK
10	0	1	1	1	1	1	1	6	1	1	1	1	0	0	0	1	5	0,23	CUKUP
11	0	1	0	1	1	1	1	5	1	1	1	0	1	0	0	0	4	0,21	CUKUP
12	1	0	1	1	1	1	1	6	0	1	0	0	0	1	0	1	3	0,48	BAIK
13	1	1	1	1	1	1	1	7	1	1	0	1	0	0	0	0	3	0,63	BAIK
14	1	1	0	1	1	1	1	6	1	1	0	0	0	1	1	0	4	0,36	CUKUP
15	1	1	1	1	1	1	0	6	0	0	1	0	0	1	0	0	2	0,61	BAIK
16	1	1	0	0	0	1	0	3	0	0	0	0	0	0	0	0	0	0,43	BAIK
17	1	1	1	1	1	1	1	7	1	1	0	0	0	0	1	1	4	0,50	BAIK
18	1	0	1	1	1	1	1	6	1	1	1	1	1	0	0	0	5	0,23	CUKUP
19	1	1	1	1	1	1	1	7	1	1	0	1	1	0	1	0	5	0,38	CUKUP
20	1	1	0	1	1	1	1	6	1	1	1	0	1	0	0	1	5	0,23	CUKUP
21	1	1	1	1	1	1	1	7	0	0	0	0	0	1	0	0	1	0,88	TINGGI
22	1	1	1	1	1	1	0	6	1	1	0	0	1	0	1	0	4	0,36	CUKUP
23	1	1	0	1	1	0	1	5	1	1	0	0	0	0	1	0	3	0,34	CUKUP
24	1	1	1	1	1	1	1	7	1	1	1	1	0	0	0	0	4	0,50	BAIK
25	1	1	1	1	0	1	1	6	1	1	0	1	1	0	0	0	4	0,36	CUKUP
26	1	1	1	1	0	1	0	5	1	1	0	0	0	0	0	1	3	0,34	CUKUP
27	1	1	1	1	1	0	1	6	0	1	0	0	0	1	1	0	3	0,48	BAIK
28	1	0	1	1	1	1	0	5	1	1	0	0	1	0	0	0	3	0,34	CUKUP
29	0	1	1	1	1	1	0	5	1	1	1	0	0	0	0	1	4	0,21	CUKUP
30	1	0	1	1	1	1	1	6	1	1	0	0	1	1	0	0	4	0,36	CUKUP
31	1	0	1	1	1	1	1	6	1	0	1	0	0	1	0	0	3	0,48	BAIK
32	1	1	1	1	0	1	1	6	1	1	1	0	1	1	0	0	5	0,23	CUKUP
33	1	1	1	0	1	1	1	6	1	0	0	1	1	0	0	0	3	0,48	BAIK
34	1	1	0	0	1	1	0	4	0	0	0	0	0	0	0	0	0	0,57	BAIK
35	1	1	1	1	1	1	1	7	1	0	1	1	0	0	1	0	4	0,50	BAIK
36	1	1	1	1	1	0	1	6	1	1	1	0	0	1	0	1	5	0,23	CUKUP
37	1	1	0	1	0	1	1	5	1	1	0	0	1	0	0	0	3	0,34	CUKUP
38	1	0	1	0	1	1	1	5	1	1	1	0	0	0	0	0	3	0,34	CUKUP
39	1	1	1	1	1	0	1	6	1	1	1	0	0	1	1	0	5	0,23	CUKUP
40	1	1	1	0	1	1	1	6	1	1	0	1	0	1	0	0	4	0,36	CUKUP
41	0	1	1	1	1	1	0	5	0	1	1	0	0	0	0	0	2	0,46	BAIK
42	1	1	1	1	0	1	1	6	1	1	1	1	1	0	0	0	5	0,23	CUKUP
43	1	1	1	1	1	0	1	6	1	1	1	0	0	0	1	1	5	0,23	CUKUP
44	0	1	1	0	1	1	0	4	0	0	0	0	0	0	0	0	0	0,57	BAIK
45	1	1	0	0	1	0	1	4	0	0	0	0	0	0	0	0	0	0,57	BAIK

BUTIR SOAL	RESPONDEN																DAYA PEMBEDA	KET
	4	2	11	6	8	9	12	JML BNR K. ATAS	15	14	10	1	13	3	5	7	JML BNR K. BWH	
46	1	1	1	1	1	1	1	7	1	1	1	1	0	1	0	1	6	0,25	CUKUP
47	1	0	1	1	0	0	0	3	1	0	0	0	0	0	0	0	1	0,30	CUKUP
48	1	0	1	1	1	1	1	6	1	0	0	1	0	0	1	0	3	0,48	BAIK
49	1	1	1	1	1	1	0	6	0	1	1	1	0	0	0	0	3	0,48	BAIK
50	0	1	1	1	1	1	1	6	0	1	1	0	0	1	0	0	3	0,48	BAIK
51	1	0	1	1	0	0	0	3	0	1	0	0	0	0	0	0	1	0,30	CUKUP
52	1	1	1	1	0	1	1	6	0	1	1	0	1	0	0	0	3	0,48	BAIK
53	1	1	1	1	0	1	1	6	1	1	1	0	0	0	0	1	4	0,36	CUKUP
54	1	0	1	1	1	1	1	6	1	0	0	1	0	0	1	0	3	0,48	BAIK
55	1	1	0	0	1	1	1	5	1	1	0	0	0	1	0	0	3	0,34	CUKUP
56	0	1	1	1	1	1	1	6	1	1	1	0	0	0	0	1	4	0,36	CUKUP
57	1	1	1	1	0	0	1	5	1	1	1	0	0	0	0	0	3	0,34	CUKUP
58	1	1	0	0	1	0	0	3	1	0	0	0	0	0	0	0	1	0,30	CUKUP
59	1	1	1	1	1	1	1	7	1	1	0	1	0	0	1	1	5	0,38	CUKUP
60	1	1	1	1	1	1	0	6	1	1	0	0	0	0	1	1	4	0,36	CUKUP
61	1	1	1	0	1	1	1	6	1	0	0	0	1	0	0	0	2	0,61	BAIK
62	1	1	1	1	0	1	1	6	1	0	1	0	0	0	0	1	3	0,48	BAIK
63	1	1	1	1	1	1	1	7	0	1	1	0	1	0	0	1	4	0,50	BAIK
64	0	1	1	1	1	1	1	6	1	1	1	1	0	0	0	0	4	0,36	CUKUP
65	1	1	1	0	1	1	1	6	1	1	0	0	0	0	1	0	3	0,48	BAIK
66	1	1	1	1	1	0	1	6	1	0	0	0	0	0	1	1	3	0,48	BAIK
67	1	0	1	1	1	1	1	6	1	1	0	1	1	0	0	0	4	0,36	CUKUP
68	1	1	1	0	1	1	1	6	1	1	0	0	0	1	0	1	4	0,36	CUKUP
69	1	1	1	1	1	1	1	7	1	1	0	1	0	0	1	0	4	0,50	BAIK
70	0	1	1	1	1	1	1	6	1	1	1	1	0	0	0	0	4	0,36	CUKUP
TOTAL	60	58	58	57	57	57	56		54	50	29	22	20	19	19	19		0,41	BAIK

Confounding Factors

HASIL UJI EFEKTIFITAS PENGECOH TES SOAL

BTR SOAL	RESPONDEN															JML JWB BENAR	JML JWB SALAH	FUNGSI PENGECOH	KET
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15				
1	0	1	1	1	0	1	1	1	1	0	1	1	0	1	1	11	4	26,7	BAIK
2	1	1	0	1	1	1	0	1	1	0	1	1	1	0	1	11	4	26,7	BAIK
3	0	1	0	0	0	1	0	1	0	0	0	1	0	0	0	4	11	73,3	BAIK
4	0	0	0	1	0	1	0	1	0	0	0	1	0	0	0	4	11	73,3	BAIK
5	0	1	1	1	1	0	0	1	1	0	1	1	0	1	1	10	5	33,3	BAIK
6	0	1	1	1	0	1	1	1	1	1	1	1	1	1	1	13	2	13,3	BAIK
7	1	1	1	1	0	1	0	1	1	1	1	1	0	0	1	11	4	26,7	BAIK
8	1	1	0	1	0	1	0	0	1	0	1	1	1	1	1	10	5	33,3	BAIK
9	0	1	0	1	1	1	0	1	1	0	1	1	1	1	1	11	4	26,7	BAIK
10	1	1	0	0	0	1	1	1	1	1	1	1	0	1	1	11	4	26,7	BAIK
11	0	1	0	0	0	1	0	1	1	1	0	1	1	1	1	9	6	40,0	BAIK
12	0	0	1	1	0	1	1	1	1	0	1	1	0	1	0	9	6	40,0	BAIK
13	1	1	0	1	0	1	0	1	1	0	1	1	0	1	1	10	5	33,3	BAIK
14	0	1	1	1	1	1	0	1	1	0	0	1	0	1	1	10	5	33,3	BAIK
15	0	1	1	1	0	1	0	1	1	1	1	0	0	0	0	8	7	46,7	BAIK
16	0	1	0	1	0	0	0	0	1	0	0	0	0	0	0	3	12	80,0	BAIK
17	0	1	0	1	1	1	1	1	1	0	1	1	0	1	1	11	4	26,7	BAIK
18	1	0	0	1	0	1	0	1	1	1	1	1	1	1	1	11	4	26,7	BAIK
19	1	1	0	1	1	1	0	1	1	0	1	1	1	1	1	12	3	20,0	BAIK
20	0	1	0	1	0	1	1	1	1	1	0	1	1	1	1	11	4	26,7	BAIK
21	0	1	1	1	0	1	0	1	1	0	1	1	0	0	0	8	7	46,7	BAIK
22	0	1	0	1	1	1	0	1	1	0	1	0	1	1	1	10	5	33,3	BAIK
23	0	1	0	1	1	1	0	1	0	0	0	1	0	1	1	8	7	46,7	BAIK
24	1	1	0	1	0	1	0	1	1	1	1	1	0	1	1	11	4	26,7	BAIK
25	1	1	0	1	0	1	0	0	1	0	1	1	1	1	1	10	5	33,3	BAIK
26	0	1	0	1	0	1	1	0	1	0	1	0	0	1	1	8	7	46,7	BAIK
27	0	1	1	1	1	1	0	1	0	0	1	1	0	1	0	9	6	40,0	BAIK
28	0	0	0	1	0	1	0	1	1	0	1	0	1	1	1	8	7	46,7	BAIK
29	0	1	0	0	0	1	1	1	1	1	1	0	0	1	1	9	6	40,0	BAIK
30	0	0	1	1	0	1	0	1	1	0	1	1	1	1	1	10	5	33,3	BAIK
31	0	0	1	1	0	1	0	1	1	1	1	1	0	0	1	9	6	40,0	BAIK
32	0	1	1	1	0	1	0	0	1	1	1	1	1	1	1	11	4	26,7	BAIK
33	1	1	0	1	0	0	0	1	1	0	1	1	1	0	1	9	6	40,0	BAIK
34	0	1	0	1	0	0	0	1	1	0	0	0	0	0	0	4	11	73,3	BAIK
35	1	1	0	1	1	1	0	1	1	1	1	1	0	0	1	11	4	26,7	BAIK
36	0	1	1	1	0	1	1	1	0	1	1	1	0	1	1	11	4	26,7	BAIK
37	0	1	0	1	0	1	0	0	1	0	0	1	1	1	1	8	7	46,7	BAIK
38	0	0	0	1	0	0	0	1	1	1	1	1	0	1	1	8	7	46,7	BAIK
39	0	1	1	1	1	1	0	1	0	1	1	1	0	1	1	11	4	26,7	BAIK
40	1	1	1	1	0	0	0	1	1	0	1	1	0	1	1	10	5	33,3	BAIK
41	0	1	0	0	0	1	0	1	1	1	1	0	0	1	0	7	8	53,3	BAIK
42	1	1	0	1	0	1	0	0	1	1	1	1	1	1	1	11	4	26,7	BAIK
43	0	1	0	1	1	1	1	1	0	1	1	1	0	1	1	11	4	26,7	BAIK
44	0	1	0	0	0	0	0	1	1	0	1	0	0	0	0	4	11	73,3	BAIK
45	0	1	0	1	0	0	0	1	0	0	0	1	0	0	0	4	11	73,3	BAIK

BTR	RESPONDEN															JML JWB	JML JWB	FUNGSI	KET
SOAL	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	BENAR	SALAH	PENGECOH	
46	1	1	1	1	0	1	1	1	1	1	1	1	0	1	1	13	2	13,3	BAIK
47	0	0	0	1	0	1	0	0	0	0	1	0	0	0	1	4	11	73,3	BAIK
48	1	0	0	1	1	1	0	1	1	0	1	1	0	0	1	9	6	40,0	BAIK
49	1	1	0	1	0	1	0	1	1	1	1	0	0	1	0	9	6	40,0	BAIK
50	0	1	1	0	0	1	0	1	1	1	1	1	0	1	0	9	6	40,0	BAIK
51	0	0	0	1	0	1	0	0	0	0	1	0	0	1	0	4	11	73,3	BAIK
52	0	1	0	1	0	1	0	0	1	1	1	1	1	1	0	9	6	40,0	BAIK
53	0	1	0	1	0	1	1	0	1	1	1	1	0	1	1	10	5	33,3	BAIK
54	1	0	0	1	1	1	0	1	1	0	1	1	0	0	1	9	6	40,0	BAIK
55	0	1	1	1	0	0	0	1	1	0	0	1	0	1	1	8	7	46,7	BAIK
56	0	1	0	0	0	1	1	1	1	1	1	1	0	1	1	10	5	33,3	BAIK
57	0	1	0	1	0	1	0	0	0	1	1	1	0	1	1	8	7	46,7	BAIK
58	0	1	0	1	0	0	0	1	0	0	0	0	0	0	1	4	11	73,3	BAIK
59	1	1	0	1	1	1	1	1	1	0	1	1	0	1	1	12	3	20,0	BAIK
60	0	1	0	1	1	1	1	1	1	0	1	0	0	1	1	10	5	33,3	BAIK
61	0	1	0	1	0	0	0	1	1	0	1	1	1	0	1	8	7	46,7	BAIK
62	0	1	0	1	0	1	1	0	1	1	1	1	0	0	1	9	6	40,0	BAIK
63	0	1	0	1	0	1	1	1	1	1	1	1	1	1	0	11	4	26,7	BAIK
64	1	1	0	0	0	1	0	1	1	1	1	1	0	1	1	10	5	33,3	BAIK
65	0	1	0	1	1	0	0	1	1	0	1	1	0	1	1	9	6	40,0	BAIK
66	0	1	0	1	1	1	1	1	0	0	1	1	0	0	1	9	6	40,0	BAIK
67	1	0	0	1	0	1	0	1	1	0	1	1	1	1	1	10	5	33,3	BAIK
68	0	1	1	1	0	0	1	1	1	0	1	1	0	1	1	10	5	33,3	BAIK
69	1	1	0	1	1	1	0	1	1	0	1	1	0	1	1	11	4	26,7	BAIK
70	1	1	0	0	0	1	0	1	1	1	1	1	0	1	1	10	5	33,3	BAIK
Rata-rata																		39,5	BAIK

Appendix 25 List of Respondents Testing the Questionnaire Instrument

KEMENTERIAN PENDIDIKAN DAN KEBUDAYAAN
UNIVERSITAS NEGERI SURABAYA
FAKULTAS TEKNIK
JURUSAN TEKNIK MESIN

Kampus Ketintang
Surabaya
T. +63-31-8280009 pes 500.510
F. +62-31-8280798, 8294080
www.fi-unesa.ac.id

DAFTAR RESPONDEN INSTRUMEN KUESIONER
DI JURUSAN TEKNIK MESIN - UNESA

Nama : Ahmad Hafid Abdullah
Program Studi : S1 Pendidikan Teknik Mesin
Judul Skripsi : Evaluasi Pembelajaran Kurikulum *Integrated* pada Mata Pelajaran Produktif Kompetensi Keahlian Teknik Kendaraan Ringan di SMK Negeri 2 Surabaya

NO	NAMA	PRODI	TTD
1	Randy Ilham Eko L.	S1 - PTM	
2	Ana Kristina	S1 - PTM	
3	Yusy Wahyudin	S1 PTM	
4	Denny Wijaya	S1 Pendidikan T. Mesin	
5	Febrian Nur Firdaus	S1 Pend. Teknik Mesin	
6	AAN LANCUR F	S1 Pend. Teknik Mesin	
7	ANDRE SETYAWAN AL FARUQ	S1 PTM	
8	AHMAD ALIFAL MAROM	S1 PTM	
9	M. Al Shodiqin	—"—	
10	Washington Dwi Cahyo	S1 PTM	
11	M. Wajihul M.	S1 PTM	
12	Hon Wahyu Widayat	S1 PTM	
13	AMIR MASHUDI	S1 PTM	
14	NADA KOMALA	S1 PTM	
15	Ach. Mukhdor	S1 PTM	

Appendix 26 Test Results of the Questionnaire Instrument

Test the Validity of the Questionnaire Instrument

HASIL UJI VALIDITAS RESPONDEN KUESIONER

BUTIR	RESPONDEN															SKOR	VALIDITAS	KET
ITEM	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15			
1	4	4	3	3	4	2	4	3	4	4	4	2	2	4	3	50	0,75	Tinggi
2	3	4	4	3	4	2	3	4	4	3	4	3	3	2	3	49	0,66	Tinggi
3	4	3	3	3	4	3	3	3	4	4	4	3	3	2	3	49	0,75	Tinggi
4	4	3	4	2	3	2	3	4	3	3	4	2	2	2	4	45	0,50	Cukup
5	4	2	3	3	4	2	2	3	3	4	2	3	2	2	3	42	0,50	Cukup
6	4	3	2	3	4	3	2	2	4	4	3	3	3	3	2	45	0,57	Cukup
7	3	4	3	4	2	2	2	3	4	3	4	3	2	2	3	44	0,60	Cukup
8	4	3	3	3	4	3	2	3	3	4	3	3	3	2	2	45	0,57	Cukup
9	3	4	3	3	4	2	3	3	4	3	4	3	3	3	3	48	0,77	Tinggi
10	3	4	3	2	3	3	2	4	3	4	3	3	2	3	2	44	0,51	Cukup
1	4	2	3	3	4	3	2	3	4	3	4	3	2	2	3	45	0,61	Tinggi
2	3	3	4	2	3	3	3	3	4	4	4	3	2	3	3	47	0,60	Tinggi
3	3	3	4	4	3	2	3	3	4	4	4	2	3	3	4	49	0,55	Cukup
4	4	2	3	3	4	3	2	2	3	3	4	3	2	2	3	43	0,52	Cukup
5	3	4	3	3	4	2	2	3	4	3	4	3	4	3	3	48	0,60	Tinggi
6	2	4	3	3	4	2	2	3	3	4	4	3	2	2	3	44	0,73	Tinggi
7	3	4	3	3	4	2	3	3	4	3	4	3	3	3	3	48	0,77	Tinggi
8	4	4	3	4	4	3	2	3	4	3	4	3	2	4	3	50	0,66	Tinggi
9	3	4	3	4	3	2	2	3	4	4	3	3	2	3	3	46	0,71	Tinggi
10	3	4	3	4	2	2	2	3	4	3	4	3	2	2	3	44	0,60	Cukup
11	3	4	3	3	4	2	2	3	4	3	4	3	4	3	3	48	0,60	Tinggi
12	3	4	4	4	3	2	3	4	4	4	3	3	3	2	3	49	0,52	Cukup
1	4	4	3	3	4	2	4	3	4	4	4	2	2	4	3	50	0,75	Tinggi
2	4	4	3	3	4	2	4	3	4	4	4	2	3	4	3	51	0,70	Tinggi
3	4	3	3	2	4	3	2	3	4	4	3	3	3	2	2	45	0,64	Tinggi
4	4	3	3	3	3	3	4	3	4	4	4	3	2	3	3	49	0,59	Cukup
5	3	4	3	3	4	2	3	3	2	3	4	3	2	2	3	44	0,55	Cukup
6	4	4	3	3	3	2	4	3	4	4	4	2	2	4	3	49	0,67	Tinggi
7	4	4	3	3	4	2	4	3	4	4	4	2	2	4	3	50	0,75	Tinggi
8	4	3	3	3	4	3	2	3	3	4	3	3	3	2	2	45	0,57	Cukup
9	3	3	3	2	3	3	2	3	3	3	3	2	2	3	2	40	0,59	Cukup
10	4	4	3	3	3	2	4	3	4	4	3	3	3	2	3	48	0,57	Cukup
1	2	4	4	3	3	3	2	3	4	4	4	4	2	4	3	49	0,42	Cukup
2	4	3	3	3	4	3	2	3	4	4	4	3	3	4	3	50	0,68	Tinggi
3	4	4	3	3	4	2	4	3	4	4	4	2	2	4	3	50	0,75	Tinggi
4	4	4	3	3	4	2	4	3	4	4	4	2	2	4	3	50	0,75	Tinggi
5	4	4	3	3	4	4	2	3	4	4	4	3	2	3	3	50	0,71	Tinggi
6	3	3	4	3	3	3	3	3	4	4	3	3	3	2	2	46	0,46	Cukup
7	4	3	3	3	4	3	2	3	4	4	4	2	4	4	3	50	0,54	Cukup
8	2	4	3	3	4	2	2	3	3	4	4	3	4	2	3	46	0,49	Cukup
JML	139	141	126	121	144	98	108	122	149	147	148	110	102	114	115		0,62	Tinggi

Questionnaire Instrument Reliability Test

HASIL UJI RELIABILITAS KUESIONER

BUTIR ITEM	RESPONDEN															VARIANS BUTIR
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
1	4	4	3	3	4	2	4	3	4	4	4	2	2	4	3	0,67
2	3	4	4	3	4	2	3	4	4	3	4	3	3	2	3	0,50
3	4	3	3	3	4	3	3	3	4	4	4	3	3	2	3	0,35
4	4	3	4	2	3	2	3	4	3	3	4	2	2	2	4	0,71
5	4	2	3	3	4	2	2	3	3	4	2	3	2	2	3	0,60
6	4	3	2	3	4	3	2	2	4	4	3	3	3	3	2	0,57
7	3	4	3	4	2	2	2	3	4	3	4	3	2	2	3	0,64
8	4	3	3	3	4	3	2	3	3	4	3	3	3	2	2	0,43
9	3	4	3	3	4	2	3	3	4	3	4	3	3	3	3	0,31
10	3	4	3	2	3	3	2	4	3	4	3	3	2	3	2	0,50
1	4	2	3	3	4	3	2	3	4	3	4	3	2	2	3	0,57
2	3	3	4	2	3	3	3	3	4	4	4	3	2	3	3	0,41
3	3	3	4	4	3	2	3	3	4	4	4	2	3	3	4	0,50
4	4	2	3	3	4	3	2	2	3	3	4	3	2	2	3	0,55
5	3	4	3	3	4	2	2	3	4	3	4	3	4	3	3	0,46
6	2	4	3	3	4	2	2	3	3	4	4	3	2	2	3	0,64
7	3	4	3	3	4	2	3	3	4	3	4	3	3	3	3	0,31
8	4	4	3	4	4	3	2	3	4	3	4	3	2	4	3	0,52
9	3	4	3	4	3	2	2	3	4	4	3	3	2	3	3	0,50
10	3	4	3	4	2	2	2	3	4	3	4	3	2	2	3	0,64
11	3	4	3	3	4	2	2	3	4	3	4	3	4	3	3	0,46
12	3	4	4	4	3	2	3	4	4	4	3	3	3	2	3	0,50
1	4	4	3	3	4	2	4	3	4	4	4	2	2	4	3	0,67
2	4	4	3	3	4	2	4	3	4	4	4	2	3	4	3	0,54
3	4	3	3	2	4	3	2	3	4	4	3	3	3	2	2	0,57
4	4	3	3	3	3	3	4	3	4	4	4	3	2	3	3	0,35
5	3	4	3	3	4	2	3	3	2	3	4	3	2	2	3	0,50
6	4	4	3	3	3	2	4	3	4	4	4	2	2	4	3	0,64
7	4	4	3	3	4	2	4	3	4	4	4	2	2	4	3	0,67
8	4	3	3	3	4	3	2	3	3	4	3	3	3	2	2	0,43
9	3	3	3	2	3	3	2	3	3	3	3	2	2	3	2	0,24
10	4	4	3	3	3	2	4	3	4	4	3	3	3	2	3	0,46
1	2	4	4	3	3	3	2	3	4	4	4	4	2	4	3	0,64
2	4	3	3	3	4	3	2	3	4	4	4	3	3	4	3	0,38
3	4	4	3	3	4	2	4	3	4	4	4	2	2	4	3	0,67
4	4	4	3	3	4	2	4	3	4	4	4	2	2	4	3	0,67
5	4	4	3	3	4	4	2	3	4	4	4	3	2	3	3	0,52
6	3	3	4	3	3	3	3	3	4	4	3	3	3	2	2	0,35
7	4	3	3	3	4	3	2	3	4	4	4	2	4	4	3	0,52
8	2	4	3	3	4	2	2	3	3	4	4	3	4	2	3	0,64
Jml varians btr																20,77
Skor Total	139	141	126	121	144	98	108	122	149	147	148	110	102	114	115	315,40

K	40
K/K-1	1,03
$\frac{\sum \sigma_i^2}{\sigma_t^2}$	0,07
$\left[1-\frac{\sum \sigma_i^2}{\sigma_t^2}\right]$	0,93
RELIABILITAS	0,96
KETERANGAN	Sangat tinggi

Appendix 27 Test Instrument Sheet

INSTRUMEN TES

Kompetensi Keahlian Teknik Kendaraan Ringan Otomotif

Nama :

No. Absen :

Kelas :

Petunjuk:

1) Tulis nama, nomor absen, dan kelas saudara pada lembar soal yang tersedia
2) Bacalah soal dengan seksama pada saat saudara mengerjakan
3) Selamat mengerjakan

Berilah tanda silang (X) pada salah satu jawaban a, b, c, d, atau e yang saudara anggap benar

1. Hasil pekerjaan pengukuran dibawah ini adalah 0,16 mm, dengan limitnya sebesar 0,08 mm. Pernyataan yang sesuai dibawah ini adalah ..



a. tekanan kompresi tinggi
b. tidak perlu perbaikan
c. keluar asap hitam saat mesin hidup
d. keluar asap putih saat mesin hidup
e. perlu penggantian piston ring saja

2. Dalam perawatan berkala pada mobil perlu adanya penyetelan katup, apa akibatnya apabila celah katup terlalu rapat.....
a. mesin kurang bertenaga
b. langkah kompresi kurang padat
c. suara mesin menjadi kasar
d. mesin cepat panas
e. bisa menyebabkan klep bengkok

3. Seorang teknisi sedang melakukan *tune up* pada mobil Toyota Kijang 5K dengan FO: 1-3- 4-2, pada silinder 3 posisi piston sedang langkah usaha maka katup yang dapat distel oleh teknisi adalah sebagai berikut .....
a. silinder 3 katup in
b. silinder 2 katup ex
c. silinder 2 katup in
d. silinder 4 katup in dan ex
e. silinder 1 tidak ada

4. Salah satu tujuan celah katup buang dibuat lebih besar dari celah katup masuk adalah agar ...
a. suara mesin menjadi halus
b. tekanan kompresi tinggi
c. katup tetap menutup rapat saat terjadi pemuaian
d. mudah membedakan ukuran celahnya
e. katup buang tidak *overheating*

5. Komponen mekanik katup yang terletak diantara *camshaft* dan *pushrod* adalah ....
   a. *timing chain*
   b. *valve spring*
   c. *valve lifter*
   d. *rocker arm*
   e. *valve filter*

6. Berikut yang bukan merupakan salah satu fungsi dari blok silinder adalah ....
   a. dudukan *water pump*
   b. dudukan *manifold*
   c. tempat pembakaran
   d. dudukan rumah *timing chain*
   e. dudukan pompa oli

7. Pada penggunaan kendaraan normal, berapakah interval penggantian *engine oil* yang umum disarankan untuk mobil ....
   a. setiap 1000 km
   b. setiap 2500 km
   c. setiap 10.000 km
   d. setiap 25.000 km
   e. setiap 50.000 km

8. Yudi sedang melakukan pemeriksaan volume oli mesin dengan stik oli dengan maksud untuk mengetahui volume oli mesin.

   Pada kondisi pemeriksaan diatas indikator mana yang dikatakan volmue oli mesin diketahui baik....

   a. 1 dan 2
   b. 2 dan 3
   c. 3 dan 1
   d. 1 dan 4
   e. 2 dan 4



9. Salah satu faktor yang bukan penyebab air pendingin bercampur dengan minyak pelumas adalah .....
   a. *cylinder head* melangkung
   b. *water jacket* kepala silinder retak
   c. *gasket water pump* rusak
   d. *gasket* kepala silinder rusak
   e. saluran pelumasan di blok silinder retak

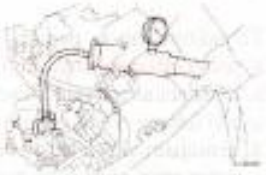
10. Komponen mesin berikut ini memerlukan pelumasan saat bekerja, kecuali....
    a. *timing chain*
    b. *timing belt*
    c. *camshaft*
    d. *crankshaft*
    e. *rocker arm shaft*

11. Mobil avanza pak Andre mengalami *overheating* saat perjalanan jauh, pemeriksaan pertama kali yang harus dilakukan adalah memeriksa ....

a. pompa air
b. air radiator
c. *thermostat*
d. radiator
e. saluran air pendingin

12. Sistem pendingin berfungsi menjaga supaya *temperature* mesin dalam kondisi yang ideal. jika kontak ON dan kipas pendingin radiator hidup terus, apakah komponen yang *trouble*.....
a. ECT sensor
b. *fuse* EFI
c. CKP sensor
d. *relay* EFI
e. *oxigen* sensor

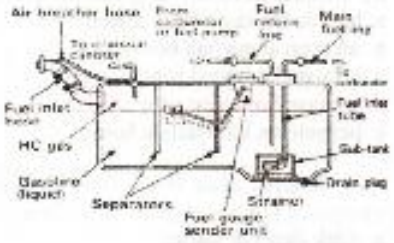
13. Sebuah mesin mengalami *overheat*. Setelah dilakukan pekerjaan dibawah ini, hasil menunjukkan jarum tidak bergerak turun setelah dilakukan pemompaan, apa yang dapat menyebabkan terjadinya *overheat* ....



a. klem selang radiator kendor
b. *cylinder block* retak
c. kisi radiator korosi
d. *cooling fan* tidak bekerja
e. *gasket cylinder head* bocor

14. Pekerjaan *tune-up* mesin di bawah ini memiliki pengaruh terhadap kerja *cooling system*, kecuali ..
a. pemeriksaan ketegangan *timming chain*
b. pemeriksaan kerja *thermostat*
c. pemeriksaan level dan kualitas *coolant*
d. pemeriksaan sirkulasi *coolant* saat mesin dingin dan panas
e. pemeriksaan tekanan pembukaan *radiator cap*

15. Perhatikan gambar di samping, pada tangki bahan bakar terdapat komponen separator, apa kegunaan dari komponen tersebut ...
a. pengirim bahan bakar dari tangki bahan bakar ke ruang silinder
b. pemisah ruangan di tangki bahan bakar
c. pencegah perubahan permukaan bahan bakar dijalan yang tidak merata
d. penyaring bahan bakar
e. suplai untuk start dingin mesin



16. Mesin menggunakan karburator dapat hidup saat *throttle valve* dibuka, akan tetapi mati saat *throttle valve* ditutup. gangguan ini disebabkan ....
a. *main nozzle primer* dan *sekunder* tertukar
b. *power piston* macet
c. *power valve* macet tertutup
d. *solenoid valve* tidak bekerja
e. *slow port* aus

17. Saat gas mobil diinjak tiba-tiba tenaga mesin kurang responsif, seorang mekanik melakukan pemeriksaan pada komponen salah satu karburator yaitu sistem ...



a. pelampung
b. *idle*
c. percepatan
d. kecepatan tinggi
e. *power*

18. Alat yang berfungsi untuk mengetahui jumlah bensin yang tersimpan pada tangki bensin mobil adalah ....
a. *tachometer*
b. *indicator*
c. *sepedometer*
d. *fuel inlet tube*
e. *fuel sender gauge*

19. Terjadinya uap air pada tangki bensin disebabkan karena ....
a. pengembunan pada suhu dingin
b. kemasukan air saat mencuci mobil
c. ada lubang yang memungkinkan terjadinya uap air
d. kemajuan aliran bahan bakar
e. pengupan pada suhu panas

20. Pompa bensin mekanik bekerja karena digerakkan oleh ....
a. poros engkol
b. noken as
c. transmisi
d. kopling
e. roda gila

21. Seorang pelanggan melakukan servis berkala di bengkel mengeluhkan mobilnya akhir-akhir ini menjadi lebih boros, apa kemungkinan penyebab terjadinya hal tersebut ...
a. busi sudah lama tidak diganti
b. tekanan angin ban berlebih
c. tekanan kompresi yang tinggi
d. tekanan kompresi yang rendah
e. penyetelan klep terlalu besar

22. Pak Hendrik akan berpergian menggunakan mobil Toyota Kijang, sebelum berangkat mengecek kondisi *engine*, dan di temukan selang PCV terlepas, hal apa yang akan terjadi ....
a. tidak dapet di starter
b. mesin tidak hidup
c. mesin hidup, putaran mesin tidak stabil
d. mesin hidup tidak bisa akselerasi
e. pompa bensin mati

23. Komponen tangki bahan bakar yang berfungsi untuk mengeluarkan bensin atau untuk mengosongkan tangki bensin, yaitu .....
a. *exhaust manifold*

b. *separator*
c. *drain plug*
d. *glow plug*
e. *eksplorasion*

24. Bagian dari karburator yang berfungsi menambah jumlah bahan bakar yang di semprotkan ke lubang venturi disebut
a. *main jet*
b. pompa akselerasi
c. pompa injeksi
d. *nozzle*
e. slow port

25. Di bengkel seorang *service advisor* menjelaskan kepada pelanggan mengenai sistem injeksi, manakah pernyataan yang benar bahwa injeksi elektronik pada kendaraan dapat dikatakan ada gangguan ...
a. saat mesin telah hidup, MIL/lampu *check engine* mati
b. *fuel pump* bekerja sejenak saat *ignition switch* diposisikan IG dan belum di-*start*
c. MIL/lampu *check engine* hidup saat *ignition switch* diposisikan IG
d. *fuel pump* belum bekerja saat *ignition switch* diposisikan IG
e. *injector* sudah mendapat input tegangan saat *ignition switch* diposisikan IG (belum di-*start*

26. Di dalam *Elektronic Fuel Injection* terdapat 2 jenis sistem yaitu tipe D-EFI dan L-EFI, letak perbedaan sistem tersebut tentang jumlah udara, tepatnya adalah ....
a. supplai bahan bakar besar dan kecil
b. supplai udara kecil dan besar
c. supplai udara menggunakan tekanan udara dengan aliran udara
d. supplai udara menggunakan tekanan udara dengan suhu udara
e. supplai udara menggunakan aliran udara

27. Komponen yang menjaga tekanan bahan bakar yang ada dalam *delivery pipe* yang akan diinjeksikan oleh injektor adalah ....
a. *fuel pump*
b. *fuel filter*
c. *pressure regulator*
d. *injector*
e. *throttle position sensor*

28. Pada sistem *Electronic Fuel Injection*, yang termasuk sensor utama yang digunakan sebagai dasar *injection timing* dan *ignition timing* adalah ....
a. *oxygen sensor*
b. *intake air temperature sensor*
c. *engine coolant temperature sensor*
d. *crankshaft position sensor*
e. *knocking sensor*

29. Mobil bermesin bensin dengan sistem injeksi elektronik bermasalah pada putaran rendah dengan AC hidup, putaran mesin akan turun bahkan mesin akan mati. Dalam hal ini komponen yang perlu diperiksa adalah .....
a. sekring AC
b. *throttle valve*
c. *injector*

d. *idle speed control*
e. *evaporator*

30. Sebuah kendaraan dengan menggunakan sistem bahan bakar EFI (*elektronic fuel injection*) konsumsi bahan bakarnya boros penyebabnya adalah ...
a. *water temperatur sensor* dan *air temperatur sensor* rusak
b. *knok sensor* dan *water temperatur sensor* rusak
c. *crankshaft sensor* dan *water temperatur sensor* rusak
d. *chamshaft sensor* dan *crankshaft sensor* rusak
e. *camshaft sensor* dan *water temperatur sensor* rusak

31. Kegiatan *Quality Control System Circle* (QCC) yaitu mengenai .....
a. sistem manajemen yang mengikutsertakan seluruh karyawan dari semua tingkatan dengan menerapkan konsep-konsep pengendalian mutu dan metode statistik untuk mendapatkan kepuasan pelanggan dan karyawan itu sendiri
b. sistem manajemen yang mengikutsertakan beberapa karyawan dengan menerapkan konsep konsep QCC dan metode statistik untuk mendapatkan kepuasan karyawan
c. sistem manajemen yang mengikutsertakan seluruh karyawan dengan menerapkan alat analisa untuk mendapakan kepuasan pelanggan.
d. sistem manajemen yang mengikutsertakan seluruh atasan
e. sistem manajemen yang bertujuan untuk kepuasan pelanggan

32. Pada akhirnya/pilirannya, sasaran QCC adalah ....
a. meningkatkan produktifitas keuntungan dan kemampuan perusahaan yang akhirnya juga meningkatkan kesejahteraan karyawan
b. meningkatkan produktifitas dan keuntungan perusahaan, serta menyenangkan atasan dan bawahan
c. meningkatkan kesejahteraan karyawan dan pimpinan
d. meningkatkan keuangan perusahaan dan karyawan
e. meningkatkan sistem manejmen perusahaan

33. Yang termasuk dalam perencanaan (*plan*) dalam proses pemecahan masalah ....
a. menentukan tema, mencari penyebab, merencanakan perbaikan, menentukan faktor yg paling berpengaruh
b. menetukan tema, merencanakan perbaikan, mencari penyebab, menentukan faktor yg paling berpengaruh
c. menentukan tema, mecari penyebab, menentukan faktor-faktor yang paling berpengaruh, melaksanakan perbaikan
d. menetukan tema, mencari penyebab, menentukan faktor-faktor yang paling berpengaruh, merencanakan perbaikan.
e. menentukan tema, melaksanakan perencanaan, mencari penyebab, merencakan perbaikan, melaksanakan perbaikan.

34. Yang termasuk *action* dalam proses pemecahan masalah adalah ....
a. memeriksa hasil dan mencegah terulangnya masalah
b. mencegah terulangnya masalah dan melaksanakan langkah perbaikan
c. mencegah terulangnya masalah dan menggarap langkah selanjutnya
d. melaksanakan langkah perbaikan dan memeriksan hasil perbaikan
e. memeriksa masalah dan mencegah terulang kembali

35. Pada servis berkala 20.000 km mekanik melakukan pemeriksaan saringan pembersih udara, ternyata kondisi nya sudah kotor, maka harus dilakukan ...
a. penggantian
b. pembersihan
c. pemeriksaan
d. perbaikan
e. penyetelan

36. Dari soal di atas dan pemeriksaan busi, ternyata kondisi busi juga sudah kotor, apa yang terjadi jika tidak dilakukan perawatan berkala pada mobil xenia tersebut...
a. mesin tersendat pada rmp tinggi
b. hasil pembakaran homogen
c. mesin akan mati saat stasioner
d. bahan bakar akan lebih irit
e. tarikan mesin jadi lebih ringan

37. Ketika melakukan service berkala kendaraan mesin bensin manual (karburator dan platina) dilakukan pengukuran sudut dwell dengan hasil 30° (spesifikasi 52° ± 4°), maka yang harus dilakukan teknisi adalah ....
a. penyetelan distributor dengan memutar searah jarum jam
b. penyetelan distributor dengan memutar berlawan arah jarum jam
c. penyetelan karburator dengan memutar baut penyetel
d. penyetelan platina dengan memperkecil celahnya
e. penyetelan platina dengan memperbesar celahnya

38. Pemeriksaan kelayakan pakai yang tidak dapat dilakukan pada tali penggerak kipas pendingin adalah pemeriksaan..
a. kekencangan dan keausan
b. kekendoran dan keretakan
c. terkena minyak pelumas dan kekendoran
d. masa kerja dan kelurusan
e. kelurusan dan keausan

39. Salah satu komponen *engine* yang berfungsi untuk mendeteksi hasil pembakaran di dalam ruang silinder adalah . .
a. *oxygen sensor*
b. *manifold air pressure sensor*
c. *knok sensor*
d. *throttle position sensor*
e. *intake air temperature sensor*

40. Saat Pak Hudi perjalanan dari Gresik ke Surabaya mobilnya tiba-tiba mati mendadak, setelah diperiksa ternyata pompa bensin tidak mau hidup, komponen yang terjadi malfungsi adalah ...
a. *relay* pompa bahan bakar
b. pipa bahan bakar
c. injektor
d. *intake manifold*
e. *intake air temperature sensor*

41. Di dalam *engine management system* terdapat komponen *intake air temperature sensor* (IATS) yang berfungsi untuk ....
    a. mendeteksi kevacuman pada *intake manifold* atau *chamber*
    b. mengetahui berapa persen katup gas (*throttle valve*) dibuka atau seberapa lebar katup gas terbuka saat pedal gas diinjak
    c. mendeteksi tekanan pompa bahan bakar
    d. mendeteksi posisi *camshaft*
    e. mendeteksi berapa derajat *celcius* suhu udara yang masuk di ruang filter udara sebelum ke mesin

42. Jika *engine* bisa di start tetapi *engine* tidak mau hidup apakah kemungkinan *trouble* yang tidak berhubungan dengan hal tersebut ....
    a. *camsaft position sensor*
    b. *fuse* efi
    c. *fuse* pompa bahan bakar
    d. *map sensor*
    e. relay efi

43. Dalam mendiagnosa kerusakan sistem EFI dapat menggunakan alat ....
    a. *multitester*
    b. *scanner*
    c. *avo meter*
    d. *timing light*
    e. *gas analyzer*

44. Hasil pemeriksaan mobil Toyota Avanza seperti gambar dibawah ini menunjukan DTC (*diagnostic trouble code*) P0300 *random misfire*, yang bukan gejala yang terjadi pada mesin saat mengalami *trouble* tersebut ....



    a. bahan bakar menjadi boros
    b. mesin mobil terasa pincang
    c. tenaga mesin berkurang
    d. suara mesin kasar
    e. mesin susah hidup

45. Berdasarkan soal nomor 44, komponen apa yang mengalami gangguan ....
    a. *water temperature sensor*
    b. *ignition coil*
    c. *oksigen sensor*
    d. *idle speed control*
    e. *throttle position sensor*

46. Setelah perbaikan lampu MIL (*Malfunction Indicator Lamp*) masih menyala setelah perbaikan yang kita lakukan maka diperlukan mereset ECU dengan melepas *fuse* EFI. Yang dimaksud mereset ECU adalah ....
    a. mematikan ECU
    b. mengkondisikan/membaca ulang sistem
    c. mengisi ECU
    d. mengupgrade ECU
    e. menghidupkan sistem

47. Sistem aliran bahan bakar motor diesel yang menggunakan pompa injeksi *In-Line* adalah ...
a. *fuel tank → fuel line → fuel filter → water sedimenter → feed pump → injection pump → injection pipe → injection nozzle → combustion chamber → over flow pipe → fuel tank*
b. *fuel tank → fuel line → water sedimenter → feed pump → fuel filter → injection pump → injection pipe → injection nozzle → combustion chamber → over flow pipe → feed pump*
c. *fuel tank → fuel line → feed pump → water sedimenter → fuel filter → injection pump → injection pipe → injection nozzle → combustion chamber → over flow pipe → feed pump*
d. *fuel tank → fuel line → feed pump → fuel filter → water sedimenter → injection pump → injection pipe → injection nozzle → combustion chamber → over flow pipe → fuel tank*
e. *fuel tank → fuel line → feed pump → fuel filter → water sedimenter → injection pump → injection pipe → combustion chamber → injection nozzle → over flow pipe → fuel tank*

48. Pada motor diesel tipe *in-line* mengalami penurunan tenaga mesin, maka agar tenaga yang dihasilkan mesin tetap maksimal perlu pemeriksaan seperti gambar di bawah ini yang menunjukan . .



a. pemeriksaan bentuk penyemprotan dan jumlah bahan bakar yang disemprotkan injektor
b. pemeriksaan tekanan dan jumlah bahan bakar yang disemprotkan injektor
c. pemeriksaan jumlah bahan bakar yang disemprotkan injektor
d. pemeriksaan jumlah bahan bakar yang disemprotkan dan kebocoran injektor
e. pemeriksaan bentuk penyemprotan dan kebocoran injektor

49. Ketika mesin diesel berjalan di tanjakan ternyata kehilangan tenaga, yang bukan penyebab hal tersebut .....
a. *turbo vane* bermasalah
b. tekanan kompresi rendah
c. lubang *nozzle* kotor
d. bahan bakar di tangki kotor
e. filter udara kotor/tersumbat

50. Pada pompa injeksi mesin diesel tipe *in line* ditemukan membran *vacuum* bocor apa akibatnya....
a. bahan bakar lebih boros
b. bahan bakar akan bocor
c. bahan bakar lebih hemat
d. putaran mesin berlebihan dan tak terkendali
e. putaran mesin turun sampai mesin mati

51. *Passenger car* yang masih menggunakan mesin diesel konvensional banyak yang menggunakan *injection pump* tipe *rotary*. Dibuwah ini, pernyataan yang benar tentang *injection pump* tipe *rotary* adalah .....
a. *selenoid valve* berfungsi membuka dan menutup saluran dari ruang *plunger* menuju *delivery valve*

b. *injection timing* adalah saat dimana ujung *cam plate* bersinggungan dengan *roller*
c. *governor* mengatur *injection timing* berdasarkan besar tekanan bahan bakar
d. *feed pump* menghisap bahan bakar dari *pump housing* menuju ruang *plunger*
e. volumen bahan bakar dikontrol oleh panjang langkah efektif *spring ring* dan *spill port* berdasarkan tekanan *feed pump*

52. Komponen pompa injeksi distributer yang berfungsi mencegah penetesan bahan bakar pada ujung injektor setelah pengaburan adalah ...
a. *cam plate*
b. *delivery valve*
c. *distributor port*
d. *spill ring*
e. *fuel cut solenoid*

53. Komponen *injection pump* tipe VE yang berfungsi menghasilkan tekanan tinggi pada bahan bakar yang kemudian disalurkan untuk didistribusikan ke masing-masing silinder adalah .
a. *governor* mekanik
b. *feed pump*
c. *plunger* dan *cam plate*
d. *selenoid*
e. *automatic timer*

54. Manakah dibawah ini pernyataan yang benar tentang sistem bahan bakar diesel tipe EFI konvensional ...
a. durasi pembukaan *injector* diatur oleh ECU
b. *injector pump* hanya berfungsi membangkitkan tekanan bahan bakar, sama seperti tipe *common rail*
c. masih menggunakan *injection nozzle* tipe mekanis
d. menggunakan *governor* tipe pneumatik dan sentrifugal
e. menggunakan *Electronic Drive Unit* (EDU) untuk mengontrol *injector*

55. Apa yang menjadi pembeda teknologi diesel konvensional dengan *system common rail adalah* ....
a. sistem injeksinya dikontrol oleh tekanan bahan bakar
b. sistem injeksinya yang dikontrol secara elektronik
c. pembuangan dikontrol oleh tekanan piston
d. buka katup dibuka oleh elektronik
e. semua *control* injeksi dikerjakan pompa

56. Pada sistim bahan bakar motor diesel *common rail* yang memiliki peran untuk mengirimkan data-data ke masing-masing kontrol unit yang membutuhkanya, menerima signal dari sensor untuk beberapa sistem, mengurangi jumlah kabel pada kendaraan, meningkatan daya kerja sistem *electronic* adalah
a. CAN data BUS
b. pompa injeksi
c. *priming pump*
d. MAP
e. *crankshaft sensor*

57. Komponen pada sistem *commonrail* yang berguna untuk mempatikan tekanan di dalam *rail* tetap konstan dan tidak melebihi atau turun di bawah standar adalah ...
a. *pressur control vavle*

b. *injektor (nozzle)*
c. *electric shut off valve*
d. *pressure control valve*
e. *deliveri valve*

58. Pada sistem bahan bakar motor diesel *common rail* terdapat *control* emisi diantaranya, kecuali
a. *denox catalitic converter*
b. EGR
c. pompa injeksi (*injection pump*)
d. *oxygen sensor*
e. CKP sensor

59. Pekerjaan *Tune – Up engine*, antara lain ....
a. memeriksa busi, mengganti saringan udara, memeriksa tinggi oli, melakukan penyetelan katup , membongkar kepala silinder.
b. membongkar kepala silinder, mengganti saringan udara, memeriksa tinggi oli, melakukan penyetelan katup , memeriksa busi.
c. memeriksa busi, mengganti saringan udara, memeriksa tinggi oli, melakukan penyetelan katup.
d. membongkar kepala silinder, mengganti saringan udara, memeriksa tinggi oli, melakukan penyetelan katup.
e. memeriksa busi, mengganti saringan udara, memeriksa tinggi oli, melakukan penyetelan katup , mengganti kepala silinder

60. Dalam perawatan berkala terdapat pembersihan saringan udara tipe kertas, cara yang benar yaitu...
a. disemprot dengan udara tekan dari arah udara masuk
b. dibasuh menggunakan air sampai bersih
c. disemprot dengan udara tekan dari kebalikan udara aliran masuk
d. dibersihkan menggunakan pelumas
e. dibersihkan menggunakan air dan pelumas

61. Kegiatan berturut-turut berikut ini pelepasan busi, pemasangan *pressure gauge* pada lubang busi, pembukaan *throttle valve* secara penuh dan menstarter berkali-kali adalah tindakan ...



a. pemeriksaan kerja starter
b. pengukuran tekanan kompresi silinder
c. pembersihan kotoran silinder melalui lubang busi
d. pengukuran rasio kompresi silinder
e. pemeriksaan kebocoran lubang busi

62. Pada saat melakukan pemeriksaan sistem bahan bakar mekanik menemukan komponen *main jet* pada karburator tersumbat kotoran, maka hal yang akan terjadi jika tidak segera diperbaiki adalah
a. mesin tidak dapat stasioner
b. mesin tersendat atau mati pada putaran tinggi
c. mesin tidak stabil pada putaran rendah
d. mesin tidak dapat akselerasi saat pedal gas di injak
e. mesin akan detonasi pada putaran rendah

63. Apa yang dimaksud dengan *one sheet report* adalah ...
a. satu lembar laporan yang berisi data proses perbaikan dari suatu kerusakan yang sistematis
b. satu lembar laporan yang digunakan untuk menyelesaikan pekerjaan
c. satu lembar laporan yang berisi spesifikasi minimal dan sebagai pedoman perbaikan
d. sebuah laporan yang digunakan sebagai pedoman perbaikan
e. sebuah laporan yang berisi spesifikasi minimal perbaikan

64. Fungsi dari *one sheet report* yaitu untuk ...
a. sebagai laporan yang dapat mengetahui spesifikasi minimal
b. sebagai laporan administrasi suatu perusahaan
c. sebagai laporan yang dapat mempermudah dalam perbaikan selanjutnya dengan kerusakan yang sama
d. sebagai laporan kepada pimpinan
e. sebagai syarat administrasi setelah selesai perbaikan

65. Dalam membuat *one sheet report* terdapat beberapa urutan yang sesuai agar efesien, di bawah ini manakah yang sesuai ...
a. *problem*, data, analisis, *corrective action*, rekomendasi
b. *problem* , *corrective action* , data, analisis, rekomendasi
c. pendahuluan, *problem*, tujuan, *corrective action*, rekomendasi
d. pendahuluan, *problem*, data, analisis, *corrective action*
e. *problem*, data, rekomendasi, analisis, *corrective action*

66. Kita ketahui dalam proses menyusun *one sheet report* terdapat langkah yang berfungsi untuk memecahkan permasalahan dari suatu kerusakan, yang tepat pada langkah ...
a. *problem*
b. pendahuluan
c. data
d. analisis
e. *corrective action*

67. Ketika dilakukan perawatan berkala 40.000 km mesin mengeluarkan suara kasar namun tidak menunjukan kerusakan lainnya. Suara ketukan logam terdengar dari bagian atas mesin. Komponen mesin yang perlu disetel adalah .....
a. tegangan belt
b. celah platina
c. celah katup
d. kondisi air pendingin
e. kondisi percikan busi

68. Seorang mekanik melakukan tune up mobil dengan salah satu pekerjaan seperti gambar di samping ini, apa tujuan dari pekerjaan tersebut ...
a. memperoleh data tentang efisiensi pembakaran di dalam mesin
b. memperhemat bahan bakar di dalam mesin
c. agar mesin lebih awet
d. menyempurnakan pembakaran yang terjadi di dalam mesin
e. melihat jumlah bahan bakar yang terbakar



69. Dalam servis berkala 40.000 km pada mobil xenia terdapat pemeriksaan atau penggantian busi, standar ukuran celah busi yang menggunakan TWC (*three way catalytic*) dengan spesifikasi W 16 EXR . U-11 adalah...

a. 0.60 mm
b. 0.75 mm
c. 1.10 mm
d. 0.90 mm
e. 0.80 mm



70. Saat servis berkala Pak Indra mengeluhkan mobil Ayla nya tenaga mesin yang lemah atau hilang, yang bukan penyebab hal tersebut ....
a. tekanan kompresi rendah
b. sistem pengapian tidak tepat
c. campuran bahan bakar udara miskin
d. katup choke tertutup
e. mesin belum mencapai temperatur kerja

Appendix 28 List of Respondents for Test Question Instruments

KEMENTERIAN PENDIDIKAN DAN KEBUDAYAAN
UNIVERSITAS NEGERI SURABAYA
FAKULTAS TEKNIK
JURUSAN TEKNIK MESIN

Kampus Ketintang
Surabaya
T. +62-31-8280009 pes.500,510
F. +62-31-8280756, 8294060
www.ft.unesa.ac.id

DAFTAR RESPONDEN INSTRUMEN TES SOAL PENGAMBILAN DATA SKRIPSI DI SMK NEGERI 2 SURABAYA

Nama : Ahmad Hafid Abdullah
Program Studi : S1 Pendidikan Teknik Mesin
Juduk Skripsi : Evaluasi Pembelajaran Kurikulum *Integrated* pada Mata Pelajaran Produktif Kompetensi Keahlian Teknik Kendaraan Ringan di SMK Negeri 2 Surabaya

NO	NAMA	KELAS	TTD
1	AJI JAYA SURO WAHYU	XII-TKR	
2	Moch. Amin Nudin	XII-TKR2	
3	DHIMAS ARIYANTO	XII-TKR2	
4	THORIQ MAULANA SAPUTRA	XII TKR2	
5	Ronaldo Tunama Putra	XII TKR2	
6	Moch Ismail	XII TKR2	
7	Diky Abdillah Akbar	XII TKR2	
8	M. Roni Bagus S.	XII TKR2	
9	M. SHERYL P.	XII TKR-2	
10	Muhammad Khoirul Umam	XII TKR 2	
11	M. Sholeh	XII TKR 2	
12	Renaldi Dwi R.	XII TKR 2	
13	Rizki Eko S.	XII TKR 2	
14	SEPTIAN DWI CAHYO	XII TKR 2	
15	Wirman Trio Saputro	XII TKR 2	
16	Nico Adi Pratama	XII-TKR01	

KEMENTERIAN PENDIDIKAN DAN KEBUDAYAAN
UNIVERSITAS NEGERI SURABAYA
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JURUSAN TEKNIK MESIN

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Surabaya
T. +62-31-8280009 pes.500,510
F. +62-31-8280796, 8294050
www.unesa.ac.id

NO	NAMA	KELAS	TTD
17	M. ARFIANSYAH	12-TKRO1	
18	Moch Haris	12-TKRO1	
19	M. Imron S	12 - TKRO 1	
20	Vicky Arya W.	12 - TKRO 1	
21	M FAIK SOFI RAHMAT	12-TKRO1	
22	TEGAR CAHYUR W.	12 - TKRO 1	
23	ANDRE FALENDRA O.	12 TKRO1	
24	Ilham Alfian Pratama	12 TKRO 1	
25	Farid maulana	12 TKRO 1	
26	Deby 9.9 X.05	—	
27	IDAM dermawan	12 TKRO 1	
28	ERIC BAGUS AMINNUDIN	12 TKRO1	
29	M. Dicky Sadalah	12 TKRO 1	
30	Rendi Wahyu Mukti	12. TKRO 1	
31	AFIF FAHMI R.	12 TKRO 1	
32	Aldo Yogi Bachtiar.	12 TKRO 1	
33	Yusuf Ikram Saputra	12 TKRO1	
34	M. NURUL FUADI'L. CS	12-TKRO1	
35	ANDIKA HARYONO	12 TKRO 1	
36	Bagus Suhasmi	12 TKRO 1	

KEMENTERIAN PENDIDIKAN DAN KEBUDAYAAN
UNIVERSITAS NEGERI SURABAYA
FAKULTAS TEKNIK
JURUSAN TEKNIK MESIN

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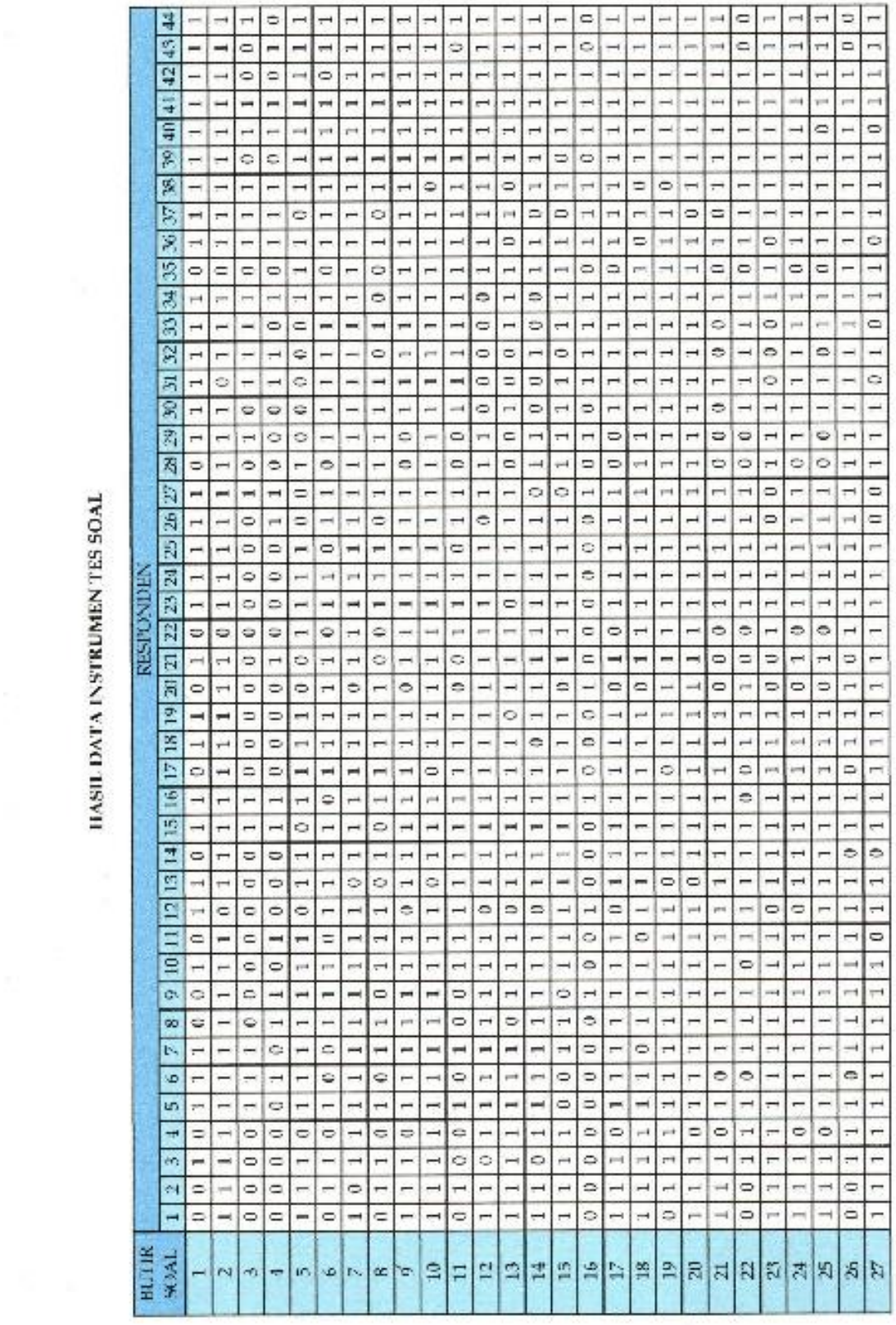
NO	NAMA	KELAS	TTD
37	Dika Prasetiyo W	XII TKR01	[signature]
38	Fatur Alim	XII TKR01	[signature]
39	Moch Adam W.	XII TKR1	[signature]
40	M Andito Christiansyah	XII TKR1	[signature]
41	Yogi Wibison	XII TKR01	[signature]
42	RIFAIDI CATUR S	XII TKR1	[signature]
43	Rian Ardianto	XII TKR1	[signature]
44	Muchamad Rizal Saputra	XII TKR01	[signature]
45			

Appendix 29 Results of Data Recapitulation Test Instruments



HASIL DATA INSTRUMEN TES SOAL

| BUTIR SOAL | RESPONDEN | | |

BUTIR SOAL	RESPONDEN																																									
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
28	1	1	1	1	1	1	0	1	1	0	1	1	1	1	0	1	0	1	1	1	1	1	0	1	1	0	1	1	1	1	1	1	1	0	1	0	1	1	1	1	1	1	1	1
29	0	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	0	0	1	1	1	1	0	1	1	1	1	0	1	1	1	1	1	1	0	1	0	1	1	1	0	1	1
30	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	0	1	1	1	1	1	0	1	1	0	0	1	1	1	1	1	0	0	1	1	1	1	1	0	1	1	1	1
31	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	0	1	1	0	1	1	0	0	1	1	1	1	1	1	0	1	0	0	1	1	0	1	1	1	1
32	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
33	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	1	0	0	1	1	1	1	1	0	1	0	1	1	1	1	1	1	1
34	0	0	0	0	0	0	0	0	0	0	1	1	1	0	1	0	0	0	0	1	0	1	0	0	0	1	1	0	0	0	1	1	1	1	1	1	1	0	0	1	1	1	1	0
35	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	0	1	1	1	1	1	0	0	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1
36	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1
37	0	1	1	0	1	1	1	1	1	1	1	0	1	1	0	1	1	1	1	1	0	1	1	1	1	0	1	1	1	1	1	1	0	0	1	1	0	1	1	0	1	1	1	1
38	0	0	1	0	1	0	0	1	1	1	1	1	0	1	1	0	1	1	1	1	0	1	1	0	0	1	1	1	1	1	1	1	1	1	1	0	1	1	0	1	1	1	0	1
39	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	0	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
40	0	0	0	1	1	1	1	1	1	1	1	1	1	1	0	1	1	0	1	0	1	1	1	0	0	1	1	1	1	1	1	1	1	1	0	1	1	0	0	1	0	0	1	1
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42	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	0	1	1	1	0	1	0	1	1	1	1	1	0	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1
43	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
44	0	1	1	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	1	1	0	1	1	0	0	1	0	0	1	0
45	0	0	0	1	0	0	0	0	0	1	1	1	1	0	1	0	0	0	0	0	0	1	0	0	0	0	1	1	1	0	0	1	1	1	0	0	1	1	0	1	0	1	0	0
46	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	0	1	1	1	1	1	1	1
47	0	0	0	0	0	0	0	1	0	0	0	0	1	0	1	0	0	0	0	1	0	0	0	0	0	1	1	0	0	1	1	1	1	1	0	1	1	1	0	1	0	0	1	1
48	0	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	0	1	0	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	1	1	1	1	1	1
49	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	0	0	1	0	0	0	1	0	1	1	1	1
50	1	0	1	0	1	1	1	0	1	0	1	1	1	1	0	0	1	1	1	0	1	0	1	1	0	1	1	0	1	1	1	1	1	1	0	1	1	1	1	0	1	1	0	0
51	0	0	0	0	0	0	1	1	0	1	1	0	1	1	1	0	0	1	0	0	1	0	0	0	0	1	0	0	0	0	1	1	0	1	0	1	1	1	0	1	0	1	0	0
52	1	1	1	0	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	0	1	0	1	1	1	1	1	0	0	1	1	0	1	0	0	1	1	1	1	1	1	1	1	1
53	1	0	1	0	1	1	1	1	1	1	1	1	0	1	0	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	0	1	0	0	1	1	1	0	1	1	1	1
54	1	1	1	0	1	1	0	0	1	1	1	1	1	1	1	1	0	1	0	0	1	0	0	1	1	1	1	0	0	1	1	1	1	1	0	1	1	0	1	1	1	1	1	1
55	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	0	1	1	1	1	0	1	0	1	1	1	1	0	0	1	1	1	1
56	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	0	1	0	1	1	1	1	0	1	1	1	0	1	1	0	0	1	1	1	1	0	1	1	1	1

BUTIR SOAL	RESPONDEN																																											
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
57	1	1	0	1	1	1	0	1	1	0	1	1	1	1	0	0	0	1	1	0	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	0	1	0	1	0	1	0	1
58	0	0	0	1	0	0	0	0	0	0	1	1	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	1	1	1	0	1	1	1	0	1	0	0	1	0
59	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
60	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	0	1	1	1	1	1	0	0	0	1	1	1	0	0	1	1	1	1	1	1	1	1	0	1	1	1
61	1	1	0	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	0	1	1	0	1	1	1	1	1	0	1	0	1	1	1	1	1	1	0	1	0	1	1	1	1
62	1	1	1	0	1	1	1	1	0	1	0	1	1	1	1	1	0	0	1	1	1	0	1	1	0	1	1	0	0	1	1	1	1	1	0	1	1	1	0	1	0	0	0	1
63	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1
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65	1	1	1	0	1	1	1	1	1	1	0	1	1	1	0	1	0	1	0	1	1	1	0	1	1	1	1	0	0	1	0	1	0	1	1	0	1	0	1	0	1	1	1	1
66	1	1	1	0	1	1	1	1	0	1	1	1	1	1	1	1	1	0	1	0	1	1	1	1	0	1	0	0	1	0	0	1	1	1	1	0	1	1	0	0	0	1	1	1
67	0	1	0	1	0	0	1	1	1	0	1	1	1	1	0	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	0	0	1	0	0	1	1	1
68	1	1	1	1	0	1	0	1	0	0	0	1	0	1	1	0	0	0	1	1	1	1	1	1	0	1	0	1	0	1	1	1	1	1	1	1	1	1	0	0	1	0	1	0
69	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
70	0	1	1	1	1	1	1	0	1	0	1	1	1	0	1	0	0	0	0	0	1	1	0	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1
JUMLAH	45	53	56	42	57	53	55	57	54	54	53	53	56	55	57	54	43	54	53	37	53	42	53	57	51	53	54	39	46	58	51	57	54	56	41	53	55	56	52	53	58	60	58	59
NILAI	64	76	79	60	81	76	79	81	77	77	79	76	80	79	81	77	61	77	76	53	76	60	76	81	73	76	77	56	66	83	77	81	77	80	59	76	79	80	74	76	83	86	83	84
KET	TIDAK LULUS	LULUS	LULUS	TIDAK LULUS	LULUS	LULUS	LULUS	LULUS	LULUS	LULUS	LULUS	LULUS	LULUS	LULUS	LULUS	LULUS	TIDAK LULUS	LULUS	LULUS	TIDAK LULUS	LULUS	TIDAK LULUS	LULUS	LULUS	TIDAK LULUS	LULUS	LULUS	TIDAK LULUS	LULUS	LULUS	LULUS	LULUS	LULUS	TIDAK LULUS	LULUS	LULUS	LULUS	TIDAK LULUS	LULUS	LULUS	LULUS	LULUS	LULUS

Jumlah Siswa		44
Ketuntasan Individu	Lulus	34
	Tidak Lulus	10
Ketuntasan Klasikal		77,27%
Keterangan		Tuntas

Appendix 30 Questionnaire Instrument Sheet

LEMBAR KUESIONER/ANGKET

EVALUASI PEMBELAJARAN KURIKULUM *INTEGRATED* PADA MATA PELAJARAN PRODUKTIF KOMPETENSI KEAHLIAN TEKNIK KENDARAAN RINGAN DI SMK NEGERI 2 SURABAYA

OLEH:
AHMAD HAFID ABDULLAH
NIM. 16050524015

UNIVERSITAS NEGERI SURABAYA
FAKULAS TEKNIK
JURUSAN TEKNIK MESIN
PROGRAM STUDI S1 PENDIDIKAN TEKNIK MESIN
KONSENTRASI S1 PENDIDIKAN TEKNIK MESIN OTOMOTIF
2020

INSTRUMEN ANGKET/KUESIONER
PELAKSANAAN KURIKULUM *INTEGRATED*

A. Identitas Responden

1. Nama :
2. NIP :
3. Jabatan :

B. Waktu dan Lokasi

1. Waktu :
2. Lokasi :

C. Tujuan

Untuk memperoleh informasi sebagai data yang digunakan dalam bahan analisa pelaksanaan dan faktor-faktor pendukung maupun penghambat dalam pelaksanaan kurikulum *integrated* pada aspek kondisi ruang kelas dan bengkel, pelaksanaan pembelajaran, sumber daya manusia, dan hubungan dengan industri pada kompetensi keahlian Teknik Kendaraan Ringan SMK Negeri 2 Surabaya

D. Petunjuk Pengisian

1. Isilah identitas responden pada bagian yang telah disediakan.
2. Jawablah setiap pernyataan yang ada dalam angket ini dengan jujur sesuai dengan kondisi yang sebenarnya dan tidak terpengaruh pihak lain.
3. Berikan tanda (√) pada pilihan jawaban yang menurut Bapak/Ibu paling sesuai dengan kondisi pelaksanaan kurikulum *integrated* yang sebenarnya pada kompetensi keahlian Teknik Kendaraan Ringan di SMK Negeri 2 Surabaya.

E. Penjelasan Alternatif Jawaban

Alternatif Jawaban	Keterangan
4	Jika pernyataan **sangat sesuai** dengan kondisi sebenarnya
3	Jika pernyataan **sesuai** dengan kondisi sebenarnya
2	Jika pernyataan **kurang sesuai** dengan kondisi sebenranya
1	Jika pernyataan **tidak sesuai** dengan kondisi sebenarnya

F. Pertanyaan

Faktor-faktor apa yang sesuai terhadap keberhasilan pelaksanaan kurikulum *integrated* pada kompetensi keahlian Teknik Kendaraan Ringan SMK Negeri 2 Surabaya?

Sub Variabel	Butir No.	Daftar Pernyataan	Alternatif Jawaban			
			1	2	3	4
Kondisi Ruang Kelas dan Bengkel						
Ruang kelas	1	Ketersediaan ruang kelas dalam proses pembelajaran materi untuk teori				
	2	Fasilitas ruang kelas yang mencukupi (papan tulis, LCD, dan proyektor)				
Bengkel	3	Ketersediaan bengkel/lab dalam proses pembelajaran materi untuk pratikum				
	4	Sirkulasi udara dan pencahayaan yang cukup untuk pembelajaran praktik di bengkel				
Peralatan dan media praktik	5	Ketersediaan jumlah peralatan praktik yang diperlukan untuk proses pembelajaran				
	6	Ketersediaan dan kesesuaian media praktik yang diperlukan untuk proses pembelajaran				
	7	Tata kelola pemakaian dan penggunaan alat praktik dikelola dengan lembar peminjaman yang jelas				
Penerapan K3	8	Adanya simbol-simbol K3 (keamanan, kenyamanan dan kesehatan kerja) di setiap ruangan dan jenis pekerjaan				
	9	Ketersediaan APAR (Alat Pemadam Api Ringan) di bengkel				
	10	Ketersediaan APD (Alat Pelindung Diri) saat praktik				
Pelaksanaan Pembelajaran						
Materi dan Peralatan (Media Pembelajaran)	1	Ketersediaan materi pembelajaran sesuai KIKD (Kompetensi Inti Kompetensi Dasar) baik berupa *soft file, e-book*, buku literasi, *job sheet*, dan video animasi				
	2	Ketersediaan peralatan (media pembelajaran) dalam menunjang proses pembelajaran seperti papan tulis, LCD, buku, simulator, animator.				

Persiapan Mengajar	3	Penyusunan perangkat pembelajaran berpedoman pada kurikulum *integrated*				
	4	Siswa belajar mandiri materi yang akan dipelajari di rumah terlebih dahulu, saat di kelas materi dibahas bersama guru				
Proses Pembelajaran	5	Guru mengawali dan mengakhiri proses pembelajaran dengan mengucapkan salam				
	6	Materi yang disampaikan guru sesuai dengan KD (Kompetensi Dasar)				
	7	Guru memberikan tugas kepada siswa setiap akhir pembelajaran				
Waktu	8	Guru mengajar sesuai dengan jumlah waktu pembelajaran yang telah ditentukan di RPP (Rencana Pelaksanaan Pembelajaran)				
	9	Semakin banyak waktu belajar siswa di kelas untuk mata pelajaran produktif, siswa lebih banyak menguasai kompetensi kejuruan otomotif				
	10	Semangat siswa dalam mengikuti pembelajaran dari jam pelajaran pagi, siang, dan sore cenderung menurun				
Evaluasi Pembelajaran	11	Terdapat penilaian hasil belajar pada aspek kognitif (pengetahuan), afektif (sikap), dan psikomotorik (keterampilan)				
	12	Terdapat remidi bagi siswa yang mendapat nilai dibawah KKM (Kriteria Ketuntasan Minimal)				
SDM (Sumber Daya Manusia)						
Kompetensi Guru	1	Memiliki sertifikat kompetensi keahlian sesuai dengan bidangnya dari industri				
	2	Guru memiliki tingkat pendidikan strata 1 (satu) atau di atasnya dan memiliki latar belakang yang sesuai dengan kompetensi keahlian				
Jumlah dan kesesuaian SDM	3	Jumlah SDM/guru mencukupi dalam pelaksanaan pembelajaran kurikulum *integrated*				
	4	Guru memiliki pemahaman teori pengelolaan pembelajaran sesuai kurikulum *integrated*				

Motivasi Guru untuk berinovasi	5	Guru mampu menciptakan suasana kelas yang kondusif terhadap siswa kejuruan otomotif				
	6	Guru mampu meningkatkan motivasi belajar siswa terhadap kompetensi otomotif				
Pendampingan	7	Mempunyai kemampuan sebagai konsultan dalam membimbing dan mendampingi siswa				
	8	Guru mampu memberikan solusi permasalahan yang dihadapi dalam pelaksanaan pembelajaran kurikulum *intergarted*				
Pelatihan Guru	9	Guru pernah mendapat pelatihan/*workshop*/seminar dari indsutri yang mendukung pencapaian kompetensi				
	10	Guru pernah mengikuti program guru magang di industri yang sesuai dengan kompetensi keahlian				
Hubungan dengan Industri						
Penyelarasan Kurikulum	1	Sudah melakukan penyelarasan kurikulum antara sekolah dengan dunia industri				
	2	*Stakeholders* memberikan dukungan penuh untuk kelancaran kerjasama penyelarasan kurikulum dan implementasi kurikulum *integrated*				
Pratik Kerja Lapangan	3	Dalam kegiatan praktik industri siswa di tempatkan di industri kerjasama				
	4	Terdapat monitoring dari pihak sekolah dalam pelaksanaan praktik industri				
Transfer Teknologi	5	Terjadi transfer teknologi dari industri yang berdampak positif bagi perkembangan teknologi di sekolah				
	6	Terdapat slogan poster budaya 5R (Ringkas, Rapi, Resik, Rawat, dan Rajin) yang di tempatkan di bengkel-lab atau lingkungan sekolah				
Penyerapan Kerja	7	Terdapat kerjasama dalam penyerapan lulusan dengan indsutri kerjasama				
	8	Sekolah rutin mengadakan *jobfair* dengan mengundang industri yang relevan ke SMK				

Appendix 31 List of Respondents for Questionnaire and Interview Instruments

DAFTAR RESPONDEN INSTRUMEN KUESIONER DAN WAWANCARA DALAM PENGAMBILAN DATA SKRIPSI DI SMK NEGERI 2 SURABAYA

Nama : Ahmad Hafid Abdullah

Program Studi : S1 Pendidikan Teknik Mesin

Juduk Skripsi : Evaluasi Pembelajaran Kurikulum *Integrated* pada Mata Pelajaran Produktif Kompetensi Keahlian Teknik Kendaraan Ringan di SMK Negeri 2 Surabaya

NO	NAMA	NIP	JABATAN	TTD
1	SUPARTO	19610731 2007011003	WAKA SARPRAS	
2	TOHADI	19721202 2005011004	Staf Kurikulum/ GURU TKR	
3	[illegible]	19731024 2008012007	Kurikulum	
4	Sylvia	19710823 2008012006	Humas	
5	MULYONO	19780421 201001010	KAPROG TKR	
6	SUTARDI	19680915 2008011007	GURU TKR	
7	SUTRISNO	19690309 2008011013	GURU TKR	
8				
9				
10				

Appendix 32 Results of the Questionnaire Instrument Data Recapitulation

HASIL DATA INSTRUMEN KUESIONER DI SMK NEGERI 2 SURABAYA

Variabel	Sub Variabel	Butir No.	Responden							Rata - rata	Skor (%)	Ket
			1	2	3	4	5	6	7			
Kondisi Ruang Kelas dan Bengkel	Ruang kelas	1	4	4	4	4	4	4	4	4,00	100	Sangat sesuai
		2	3	3	4	3	3	3	3	3,14	78,57	Sangat sesuai
	Bengkel	3	3	4	3	3	3	4	3	3,29	82,14	Sangat sesuai
		4	4	3	4	4	3	4	3	3,57	89,29	Sangat sesuai
	Peralatan dan media praktik	5	3	3	3	3	3	2	3	2,86	71,43	Sesuai
		6	2	2	2	2	2	2	2	2,00	50	Kurang Sesuai
		7	3	3	3	3	2	3	2	2,71	67,86	Sesuai
	Penerapan K3	8	3	3	3	3	3	3	3	3,00	75	Sesuai
		9	3	3	3	3	4	4	3	3,29	82,14	Sangat sesuai
		10	3	4	3	3	4	4	3	3,43	85,71	Sangat sesuai
Pelaksanaan Pembelajaran	Materi dan Peralatan (Media Pembelajaran)	1	3	3	4	4	4	3	3	3,43	85,71	Sangat sesuai
		2	3	3	4	3	4	3	4	3,43	85,71	Sangat sesuai
	Persiapan Mengajar	3	3	3	3	3	3	3	3	3,00	75	Sesuai
		4	2	2	1	3	2	2	2	2,00	50	Kurang Sesuai
	Proses Pembelajaran	5	3	4	3	4	3	4	3	3,43	85,71	Sangat sesuai
		6	4	4	3	4	4	4	4	3,86	96,43	Sangat sesuai
		7	2	2	3	1	2	2	2	2,00	50	Kurang Sesuai
	Waktu	8	3	3	3	3	3	3	3	3,00	75	Sesuai
		9	2	3	3	2	3	3	2	2,57	64,29	Sesuai
		10	3	2	3	3	3	3	3	2,86	71,43	Sesuai
	Evaluasi Pembelajaran	11	3	1	3	3	4	3	3	3,29	82,14	Sangat sesuai
		12	4	4	3	3	4	3	3	3,43	85,71	Sangat sesuai
SDM (Sumber Daya Manusia)	Kompetensi Guru	1	3	3	3	3	2	3	3	2,86	71,43	Sesuai
		2	3	4	3	4	3	4	3	3,43	85,71	Sangat sesuai
	Jumlah dan kesesuaian SDM	3	3	2	3	3	3	4	3	3,00	75	Sesuai
		4	3	4	3	3	4	4	4	3,57	89,29	Sangat sesuai
	Motivasi Guru untuk berinovasi	5	4	3	3	3	3	3	3	3,14	78,57	Sangat sesuai
		6	3	3	3	3	3	3	3	3,00	75	Sesuai
	Pendampingan	7	4	4	3	3	3	3	2	3,14	78,57	Sangat sesuai
		8	3	2	3	3	3	3	3	2,86	71,43	Sesuai
	Pelatihan Guru	9	4	3	3	3	3	3	3	3,14	78,57	Sangat sesuai
		10	3	3	3	3	3	3	3	3,00	75	Sesuai
Hubungan dengan Industri	Penyelarasan Kurikulum	1	4	4	4	4	4	4	4	4,00	100	Sangat sesuai
		2	4	3	3	4	3	3	4	3,43	85,71	Sangat sesuai
	Praktik Kerja Lapangan	3	3	3	3	3	3	3	3	3,00	75	Sesuai
		4	3	4	3	3	4	4	3	3,43	85,71	Sangat sesuai
	Transfer Teknologi	5	4	3	3	3	3	4	3	3,29	82,14	Sangat sesuai
		6	4	4	3	3	3	4	3	3,43	85,71	Sangat sesuai
	Penyerapan Kerja	7	3	2	3	3	3	3	2	2,71	67,86	Sesuai
		8	2	2	2	2	1	2	2	1,86	46,43	Kurang Sesuai
Total Rata-rata										3,10	77,41	Sangat sesuai

Appendix 33 Results of Interview Instruments Recap

1. Curriculum Waka
   1) What do you know about the Integrated Curriculum?
      The curriculum is structured with industry
   2) What is the purpose of implementing the Integrated Curriculum which is implemented at SMK N 2 Surabaya?
      For alignment and apprenticeship of students and teachers
   3) How to manage the implementation of curriculum alignment with the industrial world?
      Curriculum synchronization is carried out every year
   4) Is there any teacher training / training in industry after curriculum alignment?
      Yes
   5) Since when has the implementation of the Intergarted curriculum been implemented?
      I don't know, because I just joined the curriculum last year
   6) How is the process of preparing the syllabus and lesson plans according to the Integrated Curriculum?
      Done together
   7) How does the Integrated Curriculum learning strategy compare to the 2013 curriculum?
      More broadly integrated
   8) How is the process of evaluating the implementation of the Integrated Curriculum at SMK N 2 Surabaya?
      Performed the industry concerned
   9) What are the supporting factors in implementing the Integrated Curriculum?
      Curriculum, students, tools and premises
   10) What are the obstacles experienced in implementing the Integrated Curriculum? If so, please state the constraints!
      -
   11) Is there a solution in dealing with the obstacles faced? If so, what solutions have been done!
      -
   12) Do you feel positive about the implementation of the Integrated Curriculum? If so, what have we got!
      Yes, the latest developments
   13) What are the future expectations from implementing the Integrated Curriculum?
      Even better

2. Waka Facilities and Infrastructure
   1) What do you know about the Integrated Curriculum?
      Previously, there were some old curricula after analysis that were not in accordance with the will of the industry. Now there is K13 which must comply with the industry-based curriculum / integrated curriculum.
   2) What is the purpose of implementing the Integrated Curriculum which is implemented at SMK N 2 Surabaya?
      So that graduates from SMK Negeri 2 Surabaya have competencies in accordance with work needs
   3) Has the completeness of facilities and infrastructure supported the implementation of the Integrated Curriculum learning?
      Some have, but there are additions that must be adjusted to the competencies desired by the industry.
   4) Do the number of learning facilities / media and practices meet the needs of the number of students in the study group?
      Equipment or workpieces do not match the number of students
   5) How is the governance of the use of tools in the Light Vehicle Engineering workshop?
      The use of the tool in the workshop is assisted by the toolman so that it is always in good condition, but sometimes there are some children who immediately take / use the tool without reporting to the toolman.
   6) Is there a development of supporting facilities / media for Integrated Curriculum learning?
      Yes, there are practical learning materials and media that must be in accordance with the integrated curriculum.
   7) What is the condition of the workshop and learning room in the Light Vehicle Engineering expertise program, do they meet the specified minimum standards?
      The conditions for workshops and learning spaces are in accordance with the determined standards, but the numbers are still inadequate.
   8) Is there any investment in equipment from partner industries to support the implementation of the Integrated Curriculum?
      Yes, the industry has helped but it is still not fulfilling.
   9) How is the process of evaluating the implementation of the Integrated Curriculum at SMK N 2 Surabaya?
      Conducted at the end of each academic year and carried out by TKR / internal department teachers
   10) What are the supporting factors in implementing the Integrated Curriculum?
      Workpieces that must exist according to industry, learning materials and videos

11) What are the obstacles experienced in implementing the Integrated Curriculum? If so, please state the constraints!
    For schools that do not have funds that are difficult to fulfill practical media, there are still no hybrid cars here. If possible, there should also be assistance with an electric car so that SMK is not left behind.
12) Is there a solution in dealing with the obstacles faced? If so, what solutions have been done!
    Using video viewing, some help from the industry.
13) Do you feel positive about the implementation of the Integrated Curriculum? If so, what have we got!
    Yes, before we did not know what the industry wanted, after the implementation of the integrated curriculum we were able to fulfill some of the necessary practice media
14) What are the future expectations from implementing the Integrated Curriculum?
    Can continue continuously and support from various parties concerned

3. Deputy Public Relations Officer
    1) What do you know about the Integrated Curriculum?
        A comprehensive curriculum between one subject will relate to other subjects / one subject has an influence with other subjects.
    2) How is the process of collaboration with industry in curriculum alignment?
        For SMKN 2 Surabaya, cooperation in curriculum alignment with DUDI has been carried out and has given good results.
    3) What is the purpose of implementing the Integrated Curriculum which is implemented at SMKN 2 Surabaya?
        The goal is to produce graduates who have good and reliable soft skills and hard skills
    4) What is the strategy for developing cooperation with other relevant industries?
        By cooperating with DUDI to become a guest teacher and industrial visits.
    5) What forms of cooperation between industry and schools have been carried out?
        Industry classes, graduate recruitment, guest teaching and curriculum synchronization
    6) Is there a transfer of technology from industry to school, if anything?
        There, for electrical majors about PLC, and TKR majors on periodic maintenance and speed and accuracy in servicing.
    7) How is the absorption of SMK N 2 Surabaya graduates with partner industries?
        Absorption with partner industries 50%, and with relevant industries 60%
    8) How is the process of evaluating the implementation of the Integrated Curriculum at SMK N 2 Surabaya?

Not running well / not yet applied

9) What are the supporting factors in implementing the Integrated Curriculum?
   Stakeholders, sarpras must be complete, teacher competence
10) What are the obstacles experienced in implementing the Integrated Curriculum? If so, please state the constraints!
   Unsuitable maple books and unfulfilled infrastructure
11) Is there a solution in dealing with the obstacles faced? If so, what solutions have been done!
   Not yet
12) Do you feel positive about the implementation of the Integrated Curriculum? If so, what have we got!
   Yes, it can support productive activities / subjects, the given subjects work together with productive subjects.
13) What are the future expectations from implementing the Integrated Curriculum?
   Really done by producing the expected graduates

4. Head of Expertise Program
   1) What do you know about the Integrated Curriculum?
      Alignment / synchronization of existing curricula in schools from the agency with industrial needs, later if something is missing, it is not allowed to be reduced.
   2) What is the purpose of implementing the Integrated Curriculum which is implemented at SMK N 2 Surabaya?
      Establishing a cooperative relationship between schools and industries, it is hoped that the graduates will be immediately absorbed in the industry.
   3) Since when has the implementation of the Intergarted curriculum been implemented?
      Cooperation with Daihatsu began in 2016
   4) Is there any training / training for teachers after the alignment of the curriculum with industry?
      Yes, there is
   5) How are the conditions of the learning environment and practice in implementing the Integrated Curriculum?
      The conditions are good, the learning is conducive and runs smoothly, but the condition of the workshop which is dusty, not clean, hot and uncomfortable makes students' enthusiasm for learning less.
   6) How is the implementation of industrial culture in the Light Vehicle Engineering expertise program?
      The implementation of the 5R culture (neat, neat, caring, and diligent) is exemplified by teachers and students who also carry out it, to shape the character of students, there are also 5R symbols and slogans at school

7) What forms of cooperation between industry and schools have been carried out?
   Starting from aligning the curriculum, providing training and OJT to SMK teachers, giving students opportunities for PKL / OJT in industry, absorption of SMK graduates, and PBD (Pintar with Daihatsu) classes
8) Is there a transfer of technology from industry to school, if anything?
   Yes, there are, such as the 5R industrial culture, information technologies as learning materials, trainer teaching aids used in the learning and practical process.
9) Is the number and suitability of HR / teacher competencies relevant to implementing Integrated Curriculum learning?
   The number of teachers is sufficient, here there are 10 teachers, although not all of them are civil servants and have the appropriate competencies because from relevant graduates and training / training from industry, not all teachers have attended training.
10) Has the implementation of learning been in line with the implementation of the integrated curriculum? If not, what is the reason and what is the cause!
   Yes, already
11) How is the process of evaluating the implementation of the Integrated Curriculum at SMK N 2 Surabaya?
   So far, the evaluation has only been internal, actually from Daihatsu there is a daihatsu accreditation, but it is not held annually. PBD accreditation is only done, we have never implemented it, because the accreditation sees / sees 1 school, not only TKR.
12) What are the supporting factors in implementing the Integrated Curriculum?
   We have collaborated with industry, from the school also support, TKR teachers also support and training / training TKR teachers.
13) What are the obstacles experienced in implementing the Integrated Curriculum? If so, please state the constraints!
   The obstacle is between the curriculum and the readiness of the tools (media), right? We don't want it to exist, because every year there are new technological developments. Teacher competence must always match the competence of the curriculum.
14) Is there a solution in dealing with the obstacles faced? If so, what solutions have been done!
   The solution is to use video and PPT media and during the internship, students can see first hand what has not been learned in school, the ability of teachers to be trained from the industry.
15) Do you feel positive about the implementation of the Integrated Curriculum? If so, what have we got!
   Yes, before synchronization we did not know the needs of the industry. After synchronization, we understand what is being done in the industry.

16) What are the future expectations from implementing the Integrated Curriculum?
    There must always be a synchronization of the curriculum every year, so that the latest competencies / technology can be found out.

5. Productive Teacher 1 (Sutrisno)
    1) What do you know about the Integrated Curriculum?
        The basis of link and match poko, in order to meet industry needs, industry must participate in the implementation of the curriculum
    2) What is the purpose of implementing the Integrated Curriculum which is implemented at SMK N 2 Surabaya?
        The goal is that competencies link and match with the industry
    3) Is there any training / training for teachers after the alignment of the curriculum with industry?
        Yes, there is
    4) What is the planning / preparation done by the teacher before teaching the Integrated Curriculum?
        By preparing PPT, modules, jobsheets, learning tools using real objects.
    5) How do you implement the Integrated Curriculum teaching?
        Like teachers in general, the opening, delivery of basic competencies achieved, perceptions, core activities, closing and evaluation. In the practice, the children immediately practice, but they have to compile a jobsheet.
    6) How do you change or innovate according to the Integrated Curriculum?
        There is training / education and training from the industry, but apart from that we also discuss with other TKR teachers so that what we convey to students is as appropriate.
    7) Do you provide assistance to students who have difficulty in the learning process or practice?
        If necessary, I assist students who are experiencing difficulties but have only taught as usual, for grades 1 and 2 using direct learning, but in grade 3 using PBL so that the children can solve problems and can improve
    8) How is the process of evaluating the implementation of Integrated Curriculum learning at SMK N 2 Surabaya?
        Evaluation through cognitive aspects can be interviews, daily tests, quizzes, UTS and UAS, on the affective aspect I connect when students practice, while in the psychomotor aspect, the practical assessment uses a jobsheet.
    9) What are the supporting factors in implementing Integrated Curriculum learning?
        There are often guest teachers from the industry, the introduction of new products from the industry, from the government we expect upgraded

equipment assistance, from the industry we expect grants for vehicles that are no longer used

10) What are the obstacles experienced in implementing the Integrated Curriculum? If so, please state the constraints!
    Equipment that is not updated, the length of time assistance has been dropped, schedules that cannot be found between industry and schools are difficult, practical learning media that are not updated 100% according to the integrated curriculum.
11) Is there a solution in dealing with the obstacles faced? If so, what solutions have been done!
    Making the most of what is here, if there is something missing, you can add it through an internship in the industry
12) Do you feel positive about the implementation of the Integrated Curriculum? If so, what have we got!
    Of course yes, just as there is a suitable periodic service in the workshop industry, the stages must be appropriate. Teacher and student skills improve
13) What are the future expectations from implementing the Integrated Curriculum?
    Support from industry and government is even better, with the hope of assisting updated equipment and vehicle grants to suit the industry

6. Productive Teacher 2 (Tohadi)
    1) What do you know about the Integrated Curriculum?
        The synchronized curriculum is combined between the service and the industrial curriculum
    2) What is the purpose of implementing the Integrated Curriculum which is implemented at SMK N 2 Surabaya?
        The goal is that the competencies taught in SMK are in accordance with the competency needs of the industry, especially Daihatsu
    3) Is there any training / training for teachers after the alignment of the curriculum with industry?
        Yes, it is with Daihatsu, but not all teachers have followed suit
    4) What is the planning / preparation done by the teacher before teaching the Integrated Curriculum?
        Just as usual, we first prepare the learning tools before teaching, but this must be in accordance with the competencies expected in the integrated curriculum.
    5) How do you implement the Integrated Curriculum teaching?
        I have programmed / divided between time [practice and theory, according to the amount of material a little or a lot.
    6) How do you change or innovate according to the Integrated Curriculum?

By participating in training from the industry, so that our competencies can be in accordance with the integrated curriculum

7) Do you provide assistance to students who have difficulty in the learning process or practice?
   Yes sometimes, but I let students solve problems with other groups or friends who can,
8) How is the process of evaluating the implementation of Integrated Curriculum learning at SMK N 2 Surabaya?
   Cognitive aspects use tests, written tests and direct question and answer. Affective at any time and does not have to be continuous, use a checklist, and direct psychomotor appraisal practice using a check list jobsheet
9) What are the supporting factors in implementing Integrated Curriculum learning?
   Support from the Daihatsu industry, Toyota often provides materials and the teachers are trained
10) What are the obstacles experienced in implementing the Integrated Curriculum? If so, please state the constraints!
   Internal constraints are laziness, but must be done, external constraints occur inequality between industry and school, such as the existing material in the syllabus of new materials, some of the materials / work objects are missing, there is still a little lack of equipment, for example the carlift is only used by 32 students , ideally 1 carlift is used by 3-4 students.
11) Is there a solution in dealing with the obstacles faced? If so, what solutions have been done!
   We look for material from the team21 book, newstep, if there is no search on the internet, and also through videos from the internet
12) Do you feel positive about the implementation of the Integrated Curriculum? If so, what have we got!
   Yes, we as teachers receive skills training, and we also apply industrial culture in SMK
13) What are the future expectations from implementing the Integrated Curriculum?
   Hopefully we can get better again, there is support from the government, such as the addition of practice units and maximum employment.

7. Productive Teacher 3 (Sutardi)
   1) What do you know about the Integrated Curriculum?
      In order to equate the material in school with the material in industry so that there must be cooperation between schools and industry, because most schools learn about old cars when the industry is already new technology cars.
   2) What is the purpose of implementing the Integrated Curriculum which is implemented at SMK N 2 Surabaya?

So that the latest technological developments can also be taught in SMK, it is hoped that graduates are ready to work

3) Is there any training / training for teachers after the alignment of the curriculum with industry?
   Yes, I have been training and OJT teachers in the industry
4) What is the planning / preparation done by the teacher before teaching the Integrated Curriculum?
   By making a syllabus and lesson plans, and preparing the materials / materials that we will teach
5) How do you implement the Integrated Curriculum teaching?
   By starting the lesson with opening, absent, then in accordance with the lesson plans made based on competencies in the integrated curriculum
6) How do you change or innovate according to the Integrated Curriculum?
   Of course we have to keep up with technological developments, we read team21's books and other books whose competencies are in accordance with industry needs
7) Do you provide assistance to students who have difficulty in the learning process or practice?
   Yes, we provide assistance to students, here are also inquiry children / ABK (Children with Special Needs), if there are children with special needs who can, I ask to teach normal children who cannot.
8) How is the process of evaluating the implementation of Integrated Curriculum learning at SMK N 2 Surabaya?
   There are 3 processes, cognitive through written tests, multiple choice / essay and interview tests, psychomotor through student practice, affective when the child is practicing and learning theory material
9) What are the supporting factors in implementing Integrated Curriculum learning?
   There are laptops, LCDs, there are books from the industry, there are teacher training / training, from the principal supports from programs related to industrial cooperation
10) What are the obstacles experienced in implementing the Integrated Curriculum? If so, please state the constraints!
   Teaching aids are still incomplete, some learning suggestions are still not suitable for the industry, technological developments are constantly developing, not being matched by equipment in SMK
11) Is there a solution in dealing with the obstacles faced? If so, what solutions have been done!
   Meanwhile, through instructional videos, if there are LKS preparation activities, we rent a car to support the competition
12) Do you feel positive about the implementation of the Integrated Curriculum? If so, what have we got!

Yes, there are many things we can get, starting from assistance with infrastructure, alignment of competences with the industrial world, learning manuals and so on

13) What are the future expectations from implementing the Integrated Curriculum?

Now the development of technology is increasingly fast, hybrid and electric cars have entered Indonesia, in the future SMKs will also have competencies regarding this matter and support from stakeholders is also increased.

Appendix 44 Research Documentation

Photos of Respondents Testing the Questionnaire Instrument





Photos of Respondents Tried Out Question Test Instruments





Photo of the teacher when collecting questionnaire and interview instruments









Data Collection Test Questions



