



# Preparation of Specification and Characteristics Module of Wood Skills Competence of Modelling Design and Building Information at SMK Negeri 5 Semarang

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**Abstract.** The subject of Building Construction Design and Land Measurement Techniques is one of the competency subjects of Building Modeling and Information Design (DPIB) expertise at SMK 5 Semarang. With the specification and characteristics module of wood, it can help students to study independently and learn according to the 2013 Curriculum (K13). The purpose of this study was to determine (1) how to make the specification module and (2) wood characteristics and student opinions on the wood specifications and characteristics module. This research method is descriptive quantitative. In collecting data, using a questionnaire/questionnaire instrument. Testing was carried out on 2 Material Experts, 2 Media Experts and students. The results of the research on the module (1) the material expert got an average final percentage of 90.83% (Very feasible), while the media expert's assessment of the module obtained a final average percentage of 99.50% (Very feasible), and (2) an average percentage Average student opinion on module 85.64 (Very good). Based on the results of the research that has been done, it can be concluded that the Module Specifications and Characteristics of Wood is suitable for use in the learning process.

**Keywords:** Modules · Basics of Building Construction and Soil Measurement Techniques · Specifications and Characteristics of Wood

## 1 Introduction

Education is something that is important for humans with education it will create quality and intellectual human beings. Through education, new things are obtained so that they can be used to create quality human resources for the progress of the nation. A nation if it has quality human resources, of course, is able to build its nation to be more advanced and better than before. So, every nation should have a good and quality education.

The State of Indonesia has also regulated the right for every citizen to obtain education as regulated in Article 31 Paragraph (1) of the 1945 Constitution which states that every citizen has the right to education.

Education is a knowledge, skill, and habit of a group or person that is passed down from one generation to another through teaching or training. An education system consisting of inputs, processes, and outputs. The input includes the education of students according to the level, the process includes teachers, media, books/modules, curriculum facilities and infrastructure according to the characteristics, while the output is the learning outcomes of students.

In the educational process there is a teaching and learning process, namely the process of delivering material from the teacher to the recipient of the material along with the development of human life, education is becoming increasingly complex. So there are various kinds of problems that sometimes often arise in education. These various problems need to be harmonized and stabilized so that learning conditions are still created according to learning objectives and can achieve optimal goals. So that education can run well.

Therefore, to form a good and quality education, a curriculum is formed. The curriculum is something that is important in the model and form of education. In terminology, curriculum means an educational program that contains various teaching materials and learning experiences that are programmed, planned and systematically designed on the basis of applicable norms and are used as guidelines in the learning process for educators to achieve educational goals [1]. According to Dakir [1], the curriculum contains all programs that are carried out to support the learning process. The program that is poured is not fixed in terms of administration only but involves the whole that is used for the learning process. According to Wahyuni [2] the curriculum can be interpreted broadly as a number of subjects that must be completed by students, as well as lesson plans made by teachers and a number of lessons that must be carried out by students.

With the curriculum, the goals and directions of education can be clearer and more focused. But from time from time to time the curriculum continues to change. These changes occur according to the current situation and developments that are increasingly developing. The curriculum that applies in Indonesia has been changed and revised several times. Currently the curriculum applied is the 2013 curriculum (K13). Curriculum 2013 (K13) is a continuation of the 2009 spectrum by covering integrated attitudes, knowledge, and skills competencies.).

This curriculum has differences from the previous curriculum. Where students are the main part as a subject in teaching and learning activities. In this curriculum, students are expected to be more independent and not completely dependent on the material presented by the teacher. This curriculum also undergoes several revisions every year to suit the growing needs and educational goals.

The curriculum changes that occurred several times made changes in the learning system, so that new educational teaching materials were needed to adapt to the goals of the new curriculum. Teaching material is a material or subject matter that is systematically arranged that is used by teachers and students in achieving the expected goals in the learning process. The types of teaching materials also vary, ranging from printed, audio, visual, audiovisual and interactive teaching materials. With the appropriate teaching materials.

With the new curriculum, learning can run well according to the objectives of Curriculum 13 (K13). However, most of the teaching materials in schools are teaching

materials with subjects that are still general in nature, so that vocational teaching materials are still lacking. As a result, teachers lack teaching materials that are in accordance with the new curriculum.

Therefore, a module was made as a means in the learning process. According to Nasution [3] books are the most common learning resources, and modules are a form of learning books. In the substance module, the emphasis is on student independence (self-study for a certain period of time). The module can be formulated as a complete and independent unit and consists of a series of activities that are arranged to help students achieve a number of goals that are formulated specifically and clearly.

With the module, students are expected to be able to learn independently first and not have to wait for the teacher to receive learning materials. So that students are ready to receive the material. One of the subjects in curriculum 13 (K13) on the competency of Building Modeling and Information Design (DPIB) is the Basics of Building Construction and Land Measurement Techniques (DKBTPT), which contains material on building construction and land surveying techniques where one of the basic competencies is contains material on the specifications and characteristics of wood. In Material Specifications and characteristics of wood, there is no module regarding that material. From some of these background things, research is carried out on “Module Preparation Specifications and Characteristics of Wood Competency in Design, Modeling and Building Information at SMK Negeri 5 Semarang”.

## 2 Method

The research method is a series of research implementations based on assumptions or the views of an expert to find solutions to various research problems. The educational research method is a scientific way to obtain valid data with the aim of discovering, developing, and proving certain knowledge so that in turn it can be used to understand, solve, and anticipate problems in the field of research [4].

The research method used in this research is descriptive research using a quantitative approach. Descriptive research is research that is used to analyze data by describing or describing the collected data as it is without intending to make conclusions that apply to the public [5].

In this research, the data analysis technique used is descriptive analysis technique.

$$Ve : \frac{Tsa}{Tse} \times 100\% \quad (1)$$

Note:

Ev : Expert validation  
 Tsa : Total score achieved  
 Tse : Total score expected.

## 3 Results and Discussion

The Stages of Making the Wood Specifications and Characteristics Module.

There are several stages in the making of the module, namely: (1) Module Requirements Analysis Stage; (2) Making a Map of the Module Specifications and Characteristics of Wood; (3) Design of Wood Specifications and Characteristics Module. At the design stage of the specifications and characteristics of the wood module, there are several validations from material experts and media experts to assess the feasibility of the module. Assessment from the experts as shown in Tables 1, 2 and 3.

Based on several recap tables of validation assessments by experts get final validation with a percentage of 90.83% with a very decent category from media experts and 99.50% from media experts.

**Table 1.** Recap of Assessment I Module Specifications and Characteristics of Wood by Material Experts

No	Aspect	Max Score	Expert 1		Expert 2	
			Score	Percentage (%)	Score	Percentage (%)
1	Eligibility Content	44	36	82	34	77
2	Serving eligibility	28	28	100	22	79
3	Language Assessment	40	40	83	37	77
Total			104		93	
Average			3.47		3.10	
Percentage (%)			86.67		77.50	
Average percentage			82.08			
Category			Very Good			

**Table 2.** Recap of Assessment II Module Specifications and Characteristics of Wood by Material Experts

No	Aspect	Max Score	Expert 1		Expert 2	
			Score	Percentage (%)	Score	Percentage (%)
1	Eligibility Content	44	41	93	41	93
2	Serving eligibility	28	26	93	26	93
3	Language Assessment	48	45	94	39	81
Total			112		106	
Average			3.73		3.53	
Percentage (%)			93.33		88.33	
Average percentage			90.83			
Category			Very Good			

**Table 3.** Recap of Assessment I Module Specifications and Characteristics of Wood by Media Experts

No	Aspect	Max Score	Expert 1		Expert 2	
			Score	Percentage (%)	Score	Percentage (%)
1	Measurement	8	8	100	8	100
2	Module Design	28	18	64	26	86
3	Module of Content Design	64	51	80	60	94
Total			77		92	
Average			3.08		3.68	
Percentage (%)			77.00		92.00	
Average percentage			84.50			
Category			Very Good			

**Table 4.** Recap of Assessment II of Timber Specifications and Characteristics Module by Media

No	Aspect	Max Score	Expert 1		Expert 2	
			Score	Percentage (%)	Score	Percentage (%)
1	Measurement	8	8	100	8	100
2	Module Design	28	27	96	28	100
3	Module of Content Design	64	64	100	64	100
Total			99		100	
Average			3.96		4.00	
Percentage (%)			77.00		100.00	
Average percentage			99.50			
Category			Very Good			

Based on Table 5. Assessment of student opinions on the specifications and characteristics of the wood module got a score of 86.34% in the aspect of appearance with a very good category, 85.16% in the aspect of presenting the material in the very appropriate category and 85.42% in the aspect of benefit with a very decent category, so that the average percentage of 885.64% in the very category feasible so that the module is feasible to be used as a learning medium (Table 4).

**Table 5.** Recap of Assessment of Student Opinions on the Specifications and Characteristics of Wood Module

No	Aspect	Percentage (%)	Category
1	Display	86.34	Very Good
2	Material Presentation	85.16	Very Good
3	The Advantage	85.42	Very Good
Average		86.64	Very Good

## 4 Conclusion

1. The steps for compiling the module specifications and characteristics of wood on the basics of building construction and land surveying techniques are as follows: (1) Module requirements analysis; (2) Making a map of the specifications and characteristics of the wood module and (3) making the design of the module for the specifications and characteristics of the wood. After the module is created, the next step is to do the validation through evaluation of module specifications and characteristics by material experts and media experts. The results of the evaluation of the specification module specifications and characteristics by material experts obtained an average value percentage of 90.83% in the very feasible category, while the average value percentage from media experts was 99.50% in the appropriate category. From the results of the validation by material experts and material experts, it can be concluded that the specifications and characteristics of the wood module are in a very feasible category and can be used in the learning process.
2. Based on the assessment of students' opinions on the specifications and characteristics of the wood module, the percentage of the average value of the three aspects, namely the appearance aspect, the material presentation aspect and the benefit aspect was 85.64% with a very good category.

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