**Abstract:** This study aims to produce a valid design training modules for courses Micro-teaching. This research is a research development by using the 4D model (define, design, develop, and disseminate). Phase disseminate not do. This study was designed to see if the module is valid, then conducted trials experts, which Micro-teaching Module design experts and specialists legibility Micro-teaching modules. Aspects tested to the experts that the aspect of the material in the module, the module presentation aspects and aspects of language and legibility. The results showed that the training modules are valid Micro-teaching by experts. It can be concluded that the Micro-teaching training modules on Study Program Informatics and Computer Engineering University of Bung Hatta FKIP was valid.

**Keywords:** Training Modules, Micro teaching, valid

**I. INTRODUCTION**

College is an educational institution that is expected to produce graduates with academic skills in the field of science that is occupied. Therefore, universities must always follow the development of science and technology is developing rapidly in order to refresh and update mainly on the motivation, attitudes and outcomes of the learning process that goes on in it.

The process of learning in Higher Education is not the same as learning in school. Learning in Higher Education is not just giving the material, topics or concepts that are strategic, but also must provide a learning to experience that allows students to study the development of self-reliance. One of the factors that can support student success in learning is the availability of adequate learning resources. However, it should be noted that the use of learning resources that are not in accordance with the characteristics of student learning will not necessarily raise the interest of students to learn independently. So happens that the lecture Micro teaching.

Training is one of the micro teaching practice teaching in the form of small (micro teaching) to develop the teaching skills of teacher’s especially prospective vocational teachers who will teach at SMK. Learning is intentionally done in the form of micro teaching the behaviors and skills to teach prospective teachers can be guided and controlled carefully by a team of lecturers micro teaching. Micro teaching learning done in a laboratory micro teaching, so that student teachers and lecturers can consider carefully the behavior of teaching candidates vocational teachers. But this form of teaching tuition micro teaching that exists today is focused on the design and implementation of learning without the same in-depth understanding of the needs of learners.

In general, the model used is focused on a model lecture. Therefore, the need for micro teaching design to produce students who are also responsive and quick in responding to the needs of learners. Based on the observations and formal interviews conducted against lecturers and students of Information Engineering and Computer Education, especially in lectures Teaching Micro, revealed several factors that cause the implementation of micro teaching lectures less than the maximum as follows. First, students lack of reference module, so often they use the model of lecture when presenting the material. Second, students are less confident. This affects the class mastery. Class dynamics untapped optimally. Students often seen stutter because they do not master the material and less accustomed to speaking in public. Third, the lack of direction and guidance of lecturers micro teaching in guiding students to prepare, choosing and planning and implementing learning. Many students who have difficulty in realizing a wide range of innovative learning model in the form of lesson plan.

Based on the above issues, this study focused on Design Training Modules Micro teaching as an effort to improve vocational teachers’ pedagogical competence of candidates. This module emphasizes the process of finding solutions to the problems presented. This study is expected by the students truly understand the needs of learners so that they can practice the plan at the same quality learning and on target.

Textbooks only focused on the presentation of the material so ignore the motivations and activities of its users. Low learning motivation will have implications on learning outcomes, with good motivation in learning will show good results. If someone learns based on their high motivation then someone who learned it will be able to give birth to a good performance. Students hoping there's an attempt of lecturers to create teaching materials that can bridge the understanding of the material presented.

In an effort to improve motivation, activity and learning outcomes on student Educational Information and Computer Engineering, have alternative solutions to problems by developing a teaching material. Teaching
material is one of learning resources that are used to facilitate the distribution of the message to be conveyed by the lecturer to the students. Teaching materials to be developed is modular print instructional materials. Modules that correspond to the demands of the curriculum and improve learning outcomes and the activities of the course is the answer to all the above problems. Through the use of the module is expected students are motivated to learn independently so that the lecture would be more effective and efficient because students are able to understand their own course materials that will be studied. Students active in learning, so no need to wait lecturers to present the material and be able to do practicum without the generous support of the lecturer.

Modules to be developed in the research are expected to lead the students to be actively involved in doing practical work of the material to be studied. Lecturers act as the directing and guiding the students in doing practical work. Thus, the activity of college students can be increased. Moreover, the module is designed as attractive as possible and packaged using easily understandable language to raise the curiosity of students in doing practical work. Activities and expected increases motivation fueling student results.

II. METHOD

a. Models Development
This type of research that will be done is research and development (Research and development / R&D). R&D is a research method that is used to produce a specific product and test the effectiveness of the product. The products that will be developed in this research is teaching training module micro teaching.

b. Procedure Development
This research aims to develop a teaching module micro teaching that is valid in terms of content and construct. This module development procedure using 4-D models proposed by Thiagarajan et al. This model consists of four phases, namely the definition phase (define), stage design (design), stage of development (develop), and the dissemination phase (disseminate) at this stage was not done due to time constraints it is only at the stage of developing a course. In this study only done three stages, namely the definition phase, design phase and the development phase. More research design can be described in the following procedures.

1) Define
This phase is done in order to see the picture of conditions on the ground with regard to the learning process Micro teaching in PTIK FKIP Bung Hatta University, then analyze the problem. The process is carried out as follows.

a) Analyzing the syllabus aims to determine whether the material taught is in conformity with the standards of competence and basic competences.

b) to analyze textbooks teaching micro teaching, to see the contents of the book conformity with the standards of competence and basic competences which must be accomplished students. The books have been suitable to be used as a reference for drafting and example problems and exercises on the modules will be developed.

c) To review the literature related to module development.

d) To study the characteristics of students to facilitate compiled language level in the module and lurch about.

e) Interviews with colleagues and students that aims to identify the problems / obstacles are encountered in the field in connection with the teaching of Micro teaching.

2) Design
The results of the definition phase is used at the design stage. At this stage, the action to be done is to design teaching modules micro teaching.

The module contains standards of competence, subject matter, a summary of the material, sample questions, exercises guided, and a bibliography. Presentation materials module can be done in several meetings that have been adapted to the syllabus.

3) Develop
At this stage the action taken is the stage of validation.

This validation phase there is two kinds used in this module, as follows:

a) The validity of the content, that is, whether the module has been designed in accordance with the training syllabus.

b) The construct validity, I the suitability of the components of the module with indicators that have been set.

Modules are already designed, consulted and discussed with experts teaching materials and expert micro teaching Educational Technology. Advice from experts is used to enhance the module. Validation activities carried out in the form filling module validation sheets and discussion to obtain valid module and unfit for use. The aspects that are validated can be seen in Table1.

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### III. INSTRUMENTS RESEARCH

Instrument of research is the development of training module validation sheet. This instrument consists of three pieces of assessment which consists of material in Module, Presentation and Language and legibility in micro teaching training. This learning material validation module will look at the suitability of the module content material that conveys.

Analysis of content and construct validity using a Likert scale based validation sheet, the steps of:

a. Scoring for each use a scale of 1-5 with the following provisions:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Very valid</td>
</tr>
<tr>
<td>4</td>
<td>Invalid</td>
</tr>
<tr>
<td>3</td>
<td>Fairly valid</td>
</tr>
<tr>
<td>2</td>
<td>Less valid</td>
</tr>
<tr>
<td>1</td>
<td>Invalid</td>
</tr>
</tbody>
</table>

b. Summing scores of each validity for all indicators. Scoring validity is given by the formula:

\[
\text{The validity} = \frac{\text{skor yang diperoleh}}{\text{skor maksimum}} \times 100\% 
\]

To determine the validity of the Learning Module developed, the criteria used can be seen in the following table:

<table>
<thead>
<tr>
<th>No</th>
<th>Level of Achievement</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>90-100</td>
<td>Very Valid</td>
</tr>
<tr>
<td>2</td>
<td>80-89</td>
<td>Valid</td>
</tr>
<tr>
<td>3</td>
<td>65-79</td>
<td>Enough Valid</td>
</tr>
<tr>
<td>4</td>
<td>55-64</td>
<td>Less Valid</td>
</tr>
<tr>
<td>5</td>
<td>0-54</td>
<td>Invalid</td>
</tr>
</tbody>
</table>

### IV. RESULTS AND DISCUSSION

Development of micro teaching training modules by using the 4D model has the following results.

#### Validity Module

To obtain valid module, carried out several stages according to model 4-D. The results obtained at each stage can be described as follows.

1) Define

This phase is carried out to see the picture of conditions in the field related to the process of training in micro teaching PTIK FKIP Bung Hatta University. At this stage, such measures syllabus analysis, analysis of textbooks, literature analysis, analysis of the characteristics of students and interviews with colleagues. The results obtained in the respective steps are as follows.

a) Analysis Syllabus

At this stage, an analysis of the training syllabus micro teaching on the courses of Computer Information Engineering Education and the Faculty of Education University of Bung Hatta. Syllabus analysis performed to see if the material being taught is in conformity with the expected competencies. Based on the results of the analysis of the syllabus known that Competency Standards (SK) of the training is the students can use the concept of micro teaching and teaching basic knowledge about the characteristics of learners.

b) Analysis Textbook

Analysis of textbooks that do aim to see whether the contents of the book are in accordance with competency in the syllabus. Textbooks analyzed are textbooks that have been used in the training of micro teaching.

Based on the analysis that has been done shows that the student is difficult to understand the book is due to the ability of students is merely theory only when the material is important for micro teaching practice.

c) Analysis of Literature

Event analyze literature is an activity undertaken to collect material related to the design of the module. Structural characteristics of a module are important in the design.
Analysis of Student Characteristics

Early planning is essential to pay attention to the characteristics, skills and experience of the students either on a group or individual. In order for modules developed according to the needs of students, researchers studied the characteristics of students to make observations.

Based on observations and data collection has been done, it is known that Bung Hatta University students Study Program Information and Computer Engineering has the background of the high school is different. Based on Table 7 in mind that the academic year 2016/2017 the percentage of high school students from majoring in science is as much as 61% and as much as 2% IPS. MAN students from majoring in science are as much as 32% and as much as 2%, while the IPS students from SMK are as much as 3%. The background of the high school students of the course will affect the initial ability, learning and motivation of students in training micro teaching. Textbooks used have not been able to become a learning resource that facilitates students with a background in high school different.

Based on the observations that have been made in the lecture during this time, it is known that outline the characteristics of student learning in the training of micro teaching are as follows.

a) Student's easy to forget the concepts learned if students are not involved in the process of building understanding of concepts such as making discoveries. Sources used for this study were not able to involve students actively.

b) Students self-learning difficulties with learning resources are limited.

c) Students who listen and respond and can solve the problems associated with the materials and Practical given faculty are students with high academic ability.

The results of the analysis of student characteristics PTIK Bung Hatta University FKIP be behind the need for the development of a module. Module development can facilitate students to be involved in inventing the concept being studied so that what is learned is not easily forgotten. This certainly can trigger the emergence of student independence in learning.

e) Interview with Friends Fellow

After analyzing micro teaching reference books, the next activity is an interview with peers. Interviews with colleagues aimed to determine the problem / what obstacles faced in the field of training in connection with micro teaching. Interviews were conducted with Mrs. Iga Setia Utama, M.Pd on January 5, 2017.

Based on interviews, it is known that during the training process of micro teaching only refer to a textbook and use the lecture method. Many students rely on explanations Lecturer in understanding the material. This means that the student has not been able to learn independently. Therefore, we need a practical teaching materials from lecturers with specific development methods to facilitate students to learn independently. Thus, students are not too many in need of help lecturers in lectures.

2) Design

Results at the stage of defining are used as a basis in the design stage. At this stage the researchers designed a training module on micro teaching. This module is designed to get students actively involved in inventing the concepts learned.

Based on the analyzes performed on the stage of definition, then designed training modules for micro teaching. Here are described the characteristics of the module are designed.

a) Cover Module

Cover is designed with an orange background that matches the color on the contents of the module. In the background there are several concepts cover microteaching written in yellow. This is done so that students have some idea about this training module to see the cover. The title contained on the cover is "Training Modules Micro teaching". This title gives the identity of the module is designed. The title on the cover using the typeface Times New Roman and Arial size 28, size 36. Here's an example of the presentation of the cover.

b) Preface
The introduction of thanksgiving and the author's purpose of designing the module. Preface made with words that are not formal and easy to understand students. Title forward using comics sans MS font size 22 and the words in the forward to use the same letter with the size of 12. Here is a sample excerpt from the preface to the training modules on Micro teaching.

c) Table of Contents
Students easily find the position / page of the desired material. Said content using Calibri font size 22 and typing of content use the same letter to size 12. Here's a sample table of contents in a training module on micro teaching.

d) Material
The material on the learning modules so that students better understand the intent of the material that will be discussed. Here are excerpts of learning materials provided to students.

e) Bibliography
Bibliography is at the end of the module. Bibliography contains references used at the time of writing modules. Bibliography useful to tell the students where the source module is obtained. Here's one excerpt from the bibliography contained in the module.
3) Develop

a) Phase Validation

Modules that have been designed further validated by the validity. Module Validation is done by two people validator. The module is declared valid after conducting a series of discussions and improvements. The first validation activities carried out on January 12, 2017 at micro teaching experts and linguists. A summary of the results of discussions with the validity can be seen in Table 7.

Table 7: Summary Advice Validation

<table>
<thead>
<tr>
<th>No</th>
<th>Name</th>
<th>Suggestion</th>
</tr>
</thead>
</table>
| 1  | Iga Setia Utami, S.Pd., M.Pd.T | ➢ Giving a name / identity in the picture should be clear.  
➢ Presentation of the concept should be to encourage students to make discoveries.  
➢ Check back typing sentences in Module!  
➢ The format of writing needs to be fixed.  
➢ Check again use the language!  
➢ Check back images on the structuring techniques Module!  
➢ Cover the more interesting Background |
| 2  | Ade Fitri Rahmadani, S.Pd., M.Pd.T | ➢ Check again typing.  
➢ Writing inconsistent image identity,  
➢ Add the sample questions |

Improvements made adjusted with the advice given on the validation. Further validation activities carried out at different times (adjusted to the willingness validation). This activity is conducted to discuss with the validation about the improvements that have been made. Discussions with the validation related to the improvements made to get the result that the module has a valid and can be used at trial.

Data validation assessment questionnaire results are described and analyzed qualitatively and quantitatively. Here are described results of the validation module that has been designed.

Material aspects in Module

The results of the validation aspect of the material in the module can be seen in Table 8. Table 8 shows that the average assessment of the validation designed modules range > 3.20. If the average of the results of validation - value > 3.20 then categorized as very valid learning tool. The results of the validation module illustrates that the material presented in accordance with the competence to be achieved. The material has been formulated by the steps of making a module that provides an opportunity for students to find their own concepts learned. This is supported by a systematic presentation of the material and their examples of questions that are relevant to the material presented.

Table 8: Results of Validation Aspects of Materials in Module

<table>
<thead>
<tr>
<th>Aspects Validated</th>
<th>Total</th>
<th>Average</th>
<th>Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>The material presented in accordance with the competency</td>
<td>12</td>
<td>4</td>
<td>Valid</td>
</tr>
<tr>
<td>The concepts outlined in the material reinforced with charts, tables, or images</td>
<td>11</td>
<td>3.67</td>
<td>Very Valid</td>
</tr>
<tr>
<td>Presentation materials have been provided an</td>
<td>13</td>
<td>4.33</td>
<td>Very Valid</td>
</tr>
</tbody>
</table>
opportunity for students to find their own concepts and principles learned

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Total</th>
<th>Average</th>
<th>Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>The material has been presented with a systematic sequence</td>
<td>12</td>
<td>4</td>
<td>Very Valid</td>
</tr>
<tr>
<td>The material has been formulated by the steps to create a module</td>
<td>13</td>
<td>4,67</td>
<td>Very Valid</td>
</tr>
<tr>
<td>Sample exercise, guided practice and independent practice relevant to the material presented.</td>
<td>14</td>
<td>4,33</td>
<td>Very Valid</td>
</tr>
</tbody>
</table>

Aspect Presentation on Module

The results of the validation aspects of the presentation of the module can be seen in Table 9 below.

Table 9: Presentation of the Results Validation Aspects Module

<table>
<thead>
<tr>
<th>Aspects Validated</th>
<th>Tot</th>
<th>Average</th>
<th>Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Key competencies and specialized as well as user modules have been presented clearly</td>
<td>11</td>
<td>4</td>
<td>Valid</td>
</tr>
<tr>
<td>In the writing of concepts and terms formulas that exist on the module has been presented clearly</td>
<td>12</td>
<td>3,67</td>
<td>Very Valid</td>
</tr>
<tr>
<td>Presentation of the study material paraphrases the idea to be conveyed</td>
<td>12</td>
<td>4,33</td>
<td>Very Valid</td>
</tr>
<tr>
<td>Presentation materials have led to the formation and understanding of the concept</td>
<td>13</td>
<td>4</td>
<td>Very Valid</td>
</tr>
<tr>
<td>Presentation materials have been actively involved students find the concept independently</td>
<td>12</td>
<td>4,33</td>
<td>Very Valid</td>
</tr>
<tr>
<td>Presentation of clear images with varying colors</td>
<td>13</td>
<td>4</td>
<td>Very Valid</td>
</tr>
<tr>
<td>modules have been present formulation of the problem that will be the focus for students in making discoveries</td>
<td>12</td>
<td>4</td>
<td>Very Valid</td>
</tr>
</tbody>
</table>

In Table 9 shows that the average of the results of the assessment validation designed modules range > 3.20. If the average of the results of validation-value > 3.20 then learning devices categorized as very valid. The results illustrate that the validation module elements such as core competencies, special competencies and instructions for use are presented clearly. Presentation materials have been actively involved students to discover concepts independently. In addition, the presentation of vivid images with varying colors.

Aspects of language and legibility on Module

The results of the validation aspects of language and legibility of the module can be seen Table 10 below.

Table 10: Aspects of Language and Readability in Module

<table>
<thead>
<tr>
<th>Aspects Validated</th>
<th>Total</th>
<th>Average</th>
<th>Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sentences are used in accordance with the rules of Indonesian</td>
<td>11</td>
<td>4</td>
<td>Valid</td>
</tr>
<tr>
<td>Sentences that are used involve logical thinking ability of students</td>
<td>12</td>
<td>3,67</td>
<td>Very Valid</td>
</tr>
<tr>
<td>The structure of the sentence in accordance with the level of student understanding</td>
<td>12</td>
<td>4,33</td>
<td>Very Valid</td>
</tr>
<tr>
<td>The shape and size of the letters on the module in accordance with the capacity of students legibility</td>
<td>13</td>
<td>4</td>
<td>Very Valid</td>
</tr>
<tr>
<td>Sentences that are used in the presentation module does not provide a double meaning (ambiguous)</td>
<td>12</td>
<td>4</td>
<td>Very Valid</td>
</tr>
</tbody>
</table>

Table 10 shows that the average of the results of the assessment validation designed modules range > 3.20. If the average of the results of validation-value > 3.20 then learning devices categorized as very valid. The tests illustrate that the use of the phrase in Module complies with the rules of the language Indonesia good. Phrase that is used to engage students the ability to think logically because it has been adapted to the level of student understanding and capacity legibility. This is supported by the presentation module not give a double meaning.

The results of the validation module as a whole can be seen in Appendix 1. The score of the overall results of the validation module is 4. This indicates that the module is very valid. During validation, the validation gives some suggestions contained in the validation sheet, are as follows:

1. Writing "image above" is replaced with "Figure 1".
2. Some of the writing / typing is still wrong.
3. Fix the combination of colors in the image.
4. The use of Indonesian language is good and true in general is good, but needs to be improved a bit.
5. You should not give a complete picture to the students, trying to navigate the student sketch or draw your own.
6. Navigate students discover the properties of double integrals through problem solving.

Based on the suggestions given validation, researchers have revised the module until the module is said to be very valid, as already described above.

**V. CONCLUSION AND DIRECTIONS FOR FUTURE RESEARCH**

**Conclusion**

The resulting design beruap micro training modules according to the needs of trainees. Modules with Characteristics of Students Mastering the subject of this module was developed through a defining phase (define), stage design (design) and stage of development (developing). The validity of the training module has been assessed by the validation skilled in the art, including the field of designing training modules and easy to read in languages and experienced in learning.

**Suggestions**

It is time for participants to try out different learning process through the development of other teaching materials, particularly in computer-based teaching materials, so that more participants master the material so as to reduce boredom and desire to appear high taste learn.

**VI. REFERENCES**

[21] Indonesian Government Regulation No. 19 of 2005 on National Education Standards