

## Development of Tote Bag Craft Industry Engineering on Jute Materials



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**ABSTRACT:** The development of industrial engineering tote bags made from jute is a creative activity in the Medan region, Indonesia. This creative activity applies an explosive qualitative methodology. This method generates new designs by seeking new inspirations that have never been created through a critical thinking process. The process for developing a craft tote bag is as follows: 1) material for the craft industry; 2) map of the craft tote bag concept; 3) shape sketch; 4) pattern design and tote bag design; 5) the process of making tote bags; and 6) product presentation. Creative industry activities for the development of the craft tote bag industry aim to increase knowledge and skills in the craft industry for the younger generation, as well as develop the preservation of regional culture which has almost disappeared as a result of technological advances and the modernization era.

**KEYWORDS:** development, industry, craft, tote bag

### I. INTRODUCTION

[1] Development is an effort that is used to develop and validate a product being developed, in which the product being developed carries out the field trial stage and revises the results of field trials and development can be in the form of designs, processes and products. So that it can be said that development is an action to develop a new product or improve an old product, which is validated and field tested and revised the product to create a good final product.

[2] based on (KBBI) Big Indonesian Dictionary, development is in the form of developing processes, methods, and actions. Then in the Big Indonesian Dictionary by WJS Poerwadar Minta, explained that 1) development is a need to increase, perfect both in mind and knowledge; 2) Development is also a process used to develop and validate a product. Development can describe a process, design and product produced.

[3] Development is the use of various kinds of technical knowledge in realizing new materials or equipment. Production and services are increased substantially for the new process or system, before the start of a commercial production system increases substantially with what is already being produced. So it can be concluded that development is the deepening of a learning material by producing new products.

[4] Industrial engineering is an effort so that every implementation of the work pleases employees whose work processes are effective and efficient. Forms of engineering can be in the fields of production management, distribution management, technology management, human resource management, and information management. Companies will lose if the linkages to industrial engineering to improve efficiency and simplify work methods cause the development of the human element to be neglected.

[5] Craft industry engineering is a skill that applies a craft engineering approach at the stages of designing, evaluating, and increasing productivity in a system which is integrated between people, materials, equipment, technology, energy, and information.

[6] Today's craft is always oriented towards artistic achievements, whose works are functional, creative, innovative, and have individual characteristics of each artist. So that craft art is a branch of fine arts that gives appreciation to the public to accept craft art through creative processes and aesthetic expressions in a distinctive form originating from craftsmen. Today's craft produces works of art that are classified into two categories, namely applied art and pure art. In applied art guided by functional value for society. Then craft art belongs to the category of pure art. The two crafts are guided by the utilization of elements of cultural traditions in creating works.

[7] A tote bag is a tote bag used by women to carry various items such as cosmetics, books, equipment or other uses. Tote bags can be used for various purposes, because these bags are practically used to carry anything. Tote bags are made of nylon or canvas which are strong and sturdy fabrics. Based on its history, the tote bag is an American classic bag. Tote bags are more comfortable to use when carrying anything. This can be seen from the shape of the tote bag which can be large, medium or small with a handle on top. Currently, there are several types of materials for making tote bags, namely jute cloth, hemp cloth, and nylon

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cloth. Traditionally the use of burlap in tote bags for making tote bags has long been used in countries such as Malaysia and Thailand.

[8] In textile technology, fabrics consist of two groups, namely woven and non-woven fabrics. Woven fabrics are found in linen, burlap, denim, organdy, cotton, and calico. For example, woven burlap has its own characteristics in the form of a stretch weave that is different from other types of woven fabric so that it has the potential to add functional value and aesthetic value as an embellishment.

[9] Jute fiber is derived from jute and rosella (Java jutegoni) plant fibers. Jute fiber is obtained from the bark of the plants *Corchorus capsularis* and *Corchorus olitorius*. The characteristics of jute fiber are: the surface of the cloth material has a rough and hard texture so that the fiber has a strong foundation as the main weave of rugs, the nature of the material is stiff, and it is resistant to the destruction of microorganisms. The use of burlap is still limited to handicraft products with low functional and aesthetic values. So it is necessary to develop burlap materials further in order to increase the functional and aesthetic value.

[10] The development of industrial engineering tote bags made of jute material is a creative activity in the Medan-Indonesia area to increase knowledge, skills and creativity in the craft industry. So that the craft industry produced by students is more creative, innovative, has good functional and aesthetic values today. Thanks to the knowledge and skills acquired by students, it is hoped that later they will be able to meet the needs of the community in the field of household flax crafts. Likewise, the younger generation will be able to become independent entrepreneurs in the home industry and open household crafts. So the preservation of the culture of the archipelago is maintained and is able to develop the community's economy in independent entrepreneurship today.

## 2. METHODOLOGY

The methodology applied to the development of tote bag craft industry engineering on jute material is the explosive qualitative method. This methodology is a method that produces a new design that has never been created through a critical thinking process in search of new inspiration. This method produces industrial tote bag products made of burlap. Then several steps are carried out in making a craft tote bag with jute material, as follows:

a. Industrial engineering materials specifically for textile crafts.

This craft industry engineering lesson is carried out online with zoom meeting media. The lecturer explained the general definition of craft industry engineering to hand embroidered textile crafts. This learning material was presented by the lecturer using powerpoint media and accompanied by sample pictures. The teaching and learning process is carried out online by means of the lecturer guiding, explaining, conducting questions and answers. Thus the quality of learning continues to study effectively, efficiently, and educates for independent learning.

b. Make a concept map of the craft tote bag industry.

A concept map is a pattern of thinking or a person's way of thinking in a systematic, structured, scientific and creative way that is applied to a chart or choose a SmartArt Graphic. The contents of the concept map of the craft tote bag industry consist of the background of creation, the purposes and benefits of craft creation, supporting theories of craft creation, discussion of craft tote bags, conclusions, and literature. Thus the contents of the tote bag craft industry concept map are designed to be brief, complete, and easy to understand for the reader.

c. Shape sketch.

Shape sketches are simple strokes that are poured through the creator's imagination in creating a two-dimensional image in black and white. In this craft tote bag creation activity, students make simple two-dimensional images through strokes of lines, planes, light and dark shading of lighting, to become simple shapes on the surface of drawing paper. So as to produce black and white colored images using 2B pencil media.

d. Motif design and Tote bag design.

First, the motif design and tote bag design are made on corel draw media by applying elements of art with design principles to produce a new form, namely stylization. The second step, the application of motifs on the surface of the tote bag, especially the front of the tote bag. So the craft tote bag design has a unique aesthetic value.

e. Tote bag product.

Tote bag products are made manually, namely with the skill of the creator's hands by producing crafts that have artistic value and have functional value for consumers. Tote bag products are made by recycling household waste in the form of jute material into unique and aesthetic crafts by applying stylized motifs.

f. Tote bag product presentation.

Tote bag product presentations were carried out by students in a systematic and structured manner using power point and video media. The presentation contained the initial product creation, craft management structure, materials, processes and techniques for craft making, to an explanation of the craft tote bag market. The presentation is carried out independently in front of the class with an offline or face-to-face learning process. So that the presentation can become new knowledge and skills for other participants.

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The process of making floral motif designs on corel draw media, as follows:

### 1. Drawing paper.

Paper drawings are made by clicking on files; new; appears create a new document; table contents name: flura design; width 5cm; height 7cm; resolution300 dpi; and click ok. Then the corel draw screen appears in the form of drawing paper measuring 5 x 7 cm which is ready to be painted with flaura motifs.

### 2. Flaura outline

Before making the outline of the flare, first display the sketch of the image that has been scanned on the Corel Draw screen. Then make the outline of the flare shape by clicking on the pen tool that follows the point of the flare shape outline; then click the shape tool; click convert to curve to make a curved line that follows the object; and choose black for the outline of the motif on the default palette; click the mouse on the right, then a black flura motif outline is formed.

### 3. The color of the flura pattern

First, coloring the flura motif is done by clicking the pick tool on the outline of the flura; then select the color magenta on the default palette; click the mouse on the left in the magenta color position. So the flare is magenta in color with a black border. Second, the leaf shape coloring process is the same as the flower coloring step, namely clicking the pick tool on the outline of the leaves; then select the green color on the default palette; Click the mouse on the left in the green position. Then the leaf is green with a black border. This is the process of making a flura motif design using corel draw media.

The process of making a flura patterned tote bag design on corel draw media, as follows:

### 1. Drawing paper.

Paper drawings are made by clicking on files; new; appears create a new document; table contents name: flura design; width 5cm; height 7cm; resolution300 dpi; and click ok. Then the corel draw screen appears in the form of drawing paper measuring 5X7 cm which is ready to paint the tote bag.

### 2. Outline the tote bag design.

Before making the outline of the tote bag design, first display a sketch of the image that has been scanned on the Corel Draw screen. Then make the outline of the tote bag shape by clicking on the pen tool that follows the point of the tote bag outline; then click the shape tool; click convert to curve to make a curved line that follows the object; and choose black for the outline of the tote bag on the default palette; click the right mouse button, then a black tote bag design outline is formed.

### 3. Tote bag design coloring.

Coloring the tote bag design is done by clicking the pick tool on the outline of the tote bag design; then select the red color on the default palette; click the mouse on the left in the red position. So the tote bag design is red with a black border.

### 4. Application of the flura shape to the tote bag design.

First, apply the flare design to the surface of the tote bag design by clicking the pick tool on all parts of the flare shape; click the object group (Ctrl+G); click Ctrl C; open page 3 by clicking the symbol (+); then press Ctrl V then a duplicate of the flura motif will appear.

Second, duplicate the tote bag design by clicking the pick tool on all parts of the tote bag shape; then click the object group (Ctrl+G); click Ctrl C; go to page 3; then press Ctrl V then a duplicate of the tote bag design will appear.

The third step, click the pick tool for floral motifs and place the floral motifs on the front of the tote bag; then click the pick tool for the entire tote bag design that has been given a floral pattern; and click click group object (Ctrl + G). This is the process of making a flura patterned tote bag design using corel draw media.

Furthermore, the process of making a craft tote bag with jute material is as follows:

### 1. Make a tote bag pattern.

Making a tote bag pattern starts with the front bag body pattern and the back bag body pattern with a size of 25 X 30cm with a rectangular shape; 2) make a pattern for the bottom of a tote bag measuring 25 X 8 cm in a rectangular shape; 3) and the third step is to make a bag handle pattern measuring 45 X 2 cm with a rectangular shape. Then all the edges of the tote bag pattern are rubbed, so that the strands of burlap cannot be separated from the weave.

### 2. Painting the flura motif on the tote bag pattern.

Painting the flura motif on the surface of the burlap material using a 2B pencil. In addition to the process of painting the flura motifs, it can also be done by tracing the printed motifs from the motif designs stored in the laptop data. So that the process of tracing motifs can be done with the help of blue carbon paper media and a rader or pencil as a means of tracing motifs on the surface of the burlap material.

### 3. Embroider motifs.

Embroidering motifs on the surface of the burlap material can be done manually, which is called hand embroidery. The hand embroidery applied to the flaura motif design uses flat embroidery stitches and stem stitches using anchor cotton thread and perle cotton thread as the main ingredients for embroidering the flaura motif. In addition to the basic burlap materials used for embroidery, linen, evenweave, and aida materials can also be used as basic materials for embroidering motifs.

### 4. Installation of zippers and worms.

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The sliding was installed after the burlap material pattern was embroidered with motifs and trimmed. So the next step is to install the zipper on the top of the tote bag using cotton thread and a sewing machine. The zippers applied to the tote bag are metal zippers and shell snaps to make it look aesthetically pleasing with a touch of natural materials. Next, sewing the metal zipper over the body of the tote bag and attaching the buttons using hand sewing techniques.

5. Sew the tote bag pattern.

Sewing the tote bag pattern is done with cotton thread and sewn using a sewing machine. The first step is to sew the pattern on the bottom or the bottom of the bag with the front view of the body of the bag; the second is to sew the pattern on the bottom of the bag with the rear view of the body of the bag; third, sew the bag handle pattern by joining the front side of the bag body with the front bag handle; Fourth, sew the pattern of the bag handle by joining the body of the bag on the back with the back of the bag handle. This is how to make a tote bag made of burlap and hand embroidered decorations are applied.

### 3. RESULT AND DISCUSSION

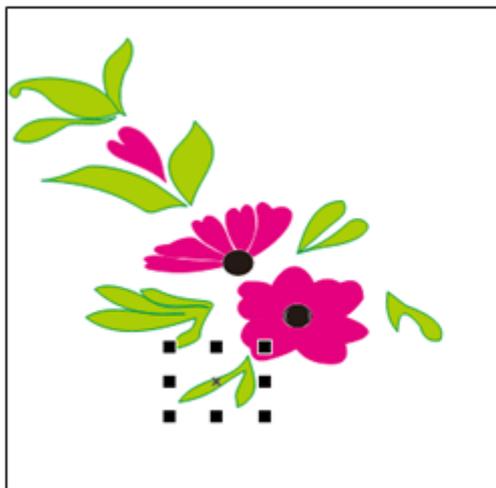


Figure 1. Motif design



Figure 2. Tote Bag



Figure 3. Tote Bag Products

Figure 1 is a stylized form of the tapak dara flora which was designed using corel draw media. This vinca flower grows in the tropics, one of which is Indonesia itself, where the flower is grown as an ornamental plant and is used as herbal medicine. Then the leaves and flowers of this periwinkle can be used as a medicine for leukemia, Hodgkin's or cancer of the glands and lymph nodes. The tapak dara flower is called the vinca flower which is an annual shrub plant originating from Madagascar, Central America. Thus the source of the idea of the tapak dara flower is designed to be a new and creative stylized motif by applying

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purple colored flowers and light green leaves. Figure 2 is a tote bag design using red combined with pink. From the front of the tote bag, there is a stylized rosewood flower decoration, both of which are designed using corel draw media. The application of flora decoration on the front surface of the tote bag design produces works of art that are creative, innovative, practical, efficient and effective in the process of making new women's bag product designs in today's technological and modern era. So that the design of the tote bag continues to apply elements of art and good and systematic design principles. Figure 3 is a tote bag product that is made manually, namely with the hands of creators who are able to process and create jute recycled waste into products that have functional values and unique aesthetic values for the community. The tote bag product uses the sprayer technique, while the flora decoration uses the hand embroidery technique. So that in one product two different techniques are applied to produce products that are ethnically and aesthetically unique. Hand embroidery applied to the surface of the burlap in the form of flat stitches and trace stitches by applying red flowers and light green leaves. The tote bag measures 45X45 cm. Then the type of dye used in the tote bag is a pigment dye. So that the absorption of pigment dyes on the jute material looks even and natural. In this way, jute waste is processed and created into a product of the women's bag craft industry which has good selling value and artistic value for the needs of the Indonesian people and foreign countries.

### Visual Aesthetic Value Approach

The tote bag craft displays an aesthetic value in the visual product, this is formed by applying design principles and elements of art in the craft. Thus the resulting product has artistic value and has functional value for people's lives. The design principles contained in the tote bag are as follows: First, unity. The principle of balance is applied to the tote bag, this can be seen in the position of the location of the periwinkle flower decoration which is placed in the center of the front of the tote bag. So that the tapak dara flower decoration is seen to look balanced, without any one-sided impression on the surface of the tote bag. Likewise the application of wave lines on the surface of the burlap material with the presence of decorative red and pink wave lines which are repeated in a balanced form of colors and lines on the surface of the burlap tote bag material. Second, the principle of rhythm that is applied to tote bag products is found in the repetition of motifs and repetition of colors. Repetition of motifs on the leaves and flower petals by applying curved lines repeatedly to form the leaves and the periwinkle flowers. The rhythm of the color repetition is found on a red and pink motif background with horizontal wave lines. then the repetition of green in the leaves and the repetition of red in the flowers. This is how the rhythm of shape and color is applied to the tote bag. Third, the principle of unity that is applied to the craft of the tote bag can be seen from the diversity of lines, planes, and colors on one craft created based on the design concept. Diversity can be seen from the various types of curved lines that form fields, namely areas of leaves and flower petals. Then the principle of unity is applied to the diversity of colors in the craft, namely red, pink, green, and brown colors which are arranged systematically on the motifs and patterns of the cloth. based on. So it can be concluded that the diversity of lines, planes, colors can produce new crafts that have artistic value, functional and aesthetic values that are good for people's lives. Thus the diversity of shapes and colors becomes a unified whole in creating creative and innovative industries in this modern era.

### CONCLUSIONS

The development of industrial engineering tote bag crafts using jute material is a creative activity of Medan students, North Sumatra. The methodological process applied to the development of the tote bag craft industry engineering is a qualitative explosive methodology. This method produces a new work that has never been created by anyone else, so the explosive method is created through critical thinking in search of new inspiration. The steps involved in making a craft tote bag made of burlap are as follows: 1) providing materials for the craft industry, specifically textiles, online; 2) designing a concept map in the tote bag craft industry; 3) sketch the shape; 4) motif design and tote bag design using corel draw media; 5) manufacture of burlap tote bags; 6) presentation of craft tote bag products. Next, the process of making the flora motif design on corel draw media is carried out, as follows: 1) Make drawing paper measuring 5X7 cm; 2) outline the black flag on page 1; 3) Make the color of the flora motif on page 2. The flowers are magenta, the leaves are light green, and the flower pistils are brown. Then the process of making a tote bag design using corel draw media is carried out, namely, as follows: 1) making drawing paper measuring 5X7 cm; 2) outline the black tote bag design on page 1; 3) coloring of the tote bag design in red and pink; 4) and application of the flare shape on the surface of the tote bag design. This is the process of making flora motifs and tote bag designs with the application of flora motifs. The process of making a tote bag made of burlap is carried out as follows: 1) making a tote bag pattern; 2) painting the flora motif on the patterned surface of the jute material; 3) embroidering motifs with flat embroidery stitches and stem embroidery stitches; 4) installation of metal zippers and installation of shell buttons; 5) sew or stitch together the tote bag pattern parts. This is how to make a tote bag made of jute with a hand embroidery application that is designed with the skill of the hands using today's technological media. Tote bag craft industry products are designed based on the application of artistic elements and design principles. The artistic elements applied to the tapak dara flower motif are various curved lines that form a plane, namely the shape of the leaves and the shape of the flower petals that are in different directions. Likewise with the colors applied to floral motifs and tote bag crafts, including red, green, brown, pink, and magenta. Meanwhile, the design principles applied to the craft of

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the tote bag can be seen in the layout and composition of shapes, areas and color motifs in a balanced way on the front of the center tote bag. Second, when viewed from the rhythm, this can be seen from the repetition of the shape found in the tote bag pattern, the front view of the body of the bag is the same shape as the rear view of the body pattern. Likewise with the repetition of the shape of the leaves, the periwinkle flowers, the colors that are applied as hand embroidery decorations. Third, the principle of unity which is applied to the decoration and shape of the tote bag in terms of the diversity of fields, colors, sizes, spacing, so that it becomes a unified whole that has unique aesthetic value and functional value for the needs of the people who follow today's craft trends. Thus the craft industry can provide opportunities for the community to open new jobs in the field of other craft home industries such as household linen crafts and fashion crafts. So that the development of creative industries can improve the economy of the middle and lower class people, and is able to increase the preservation of regional culture which has almost disappeared due to the development of the modernization era.

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