



**FAKULTI KEJURUTERAAN MEKANIKAL**  
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**Lecturer** : Ts. MOHD AZAHARI BIN JOHAN

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Title: **PAYANG FIBER MOULD PROJECT**

Prepared by: **PRODUCTION DESIGN GROUP**

Supervisor: **MISS NUR AIN BINTI ABD RAHMAN**

No.	Name	Student ID
1.	MOHAMMAD YUSHAIMAN HABIB BIN MUHD YUSOFF	2018806326
2.	WAN MOHAMAD FAHMI BIN WAN ZAKARIA	2018652106
3.	MUHAMMAD ARASH MIFZAL BIN LOKMAN @ NEJIB	2018283622
4.	MUHAMMAD HASIF FITRI BIN IZAUDIN	2018282596
5.	AHMAD HAIQAL FIKRI BIN MUHAMMAD HILMI	2018421056

Received by:

Ts. MOHD AZAHARI BIN  
JOHAN

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Lecturer / Instructor

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## **1.0 Introduction**

Perahu payang or simply payang is a traditional Malay open fishing boat. They are usually found in Terengganu, and to a lesser extent, Kelantan, Pahang, and Johor coasts. A few examples normally come down to Singapore to operate during the period of the north-east monsoon in the South China Sea.

The name perahu payang comes from payang (a type of seine) used by local fishermen. Perahu is Malay word for boat and/or ship. Thus, the name can be translated as "a boat that use payang".

Some 80 years ago, there were six common types of Malay fishing boats. The largest and most elegant fishing vessel back then was the payang. Measuring 14 metres long and 2.5 metres wide, it had a tall, steep-rising bow and a stern with equal height. Together with a main sail and a small jib, the payang carried a crew of between 15 to 20 men, a dozen oars and several leaf-shaped paddles. It was made even more attractive when painted white with horizontal bands of three or more bright colours.

While most payang were built in Terengganu, some were also built in neighbouring Kelantan. The Kelantanese fishermen favoured lighter and shorter versions which were more suited for use on their broader sloping beaches.

Nowadays, perahu payang getting lesser because of the making process is difficult and need skilled man to produce the perahu payang. The difficult process in the producing is the main reason why the young generation decided to not to learn to make the perahu payang. Luckily, we live in the modern. There are many software and machine that we can use to help us in the process of making perahu payang.

### **1.1 Overview Of Project**

The overview of the making mould of the Perahu Payang is, our group start with make a brainstorming. Then, our group make the detail design from the design of perahu payang that we get from the lecture. This process is to make sure the mould is precise. After that, our group proceed with making the design of the mould using the Rhino 6 software. Next, we make the make the illustration of the cutting process of the mould using the Powermill software.

## **1.2 Design Objective**

Our main objective for this project is to develop mould design of Payang boat. As we know, there a lot of technology that can help us to easier the process of making the boat. Next, is to reduce production time using Computer Numerical Control Machining. For example, it took more than month to produce the Payang boat using the traditional method but using the mould method we can produce the Payang less than a month. Our last objective is to aid young generation produce a boat with minimum skill

## **1.3 Scope of Project**

For the project scope, our group will design mould of Payang boat. We will use the polyurethane foam blocks as our main material for mould. For the software, we will use Rhino 6 software to make the detail design process and design the mould of the Payang. Lastly, we will use Powermill software to make the cutting illustration process.

## **1.4 Significance of Project**

The significance of the project making mould of Payang boat is it will can give the benefit to the user or humanity. The new design of mould definitely can give the positive vibes to the naval industry. The engineer in the naval industry should have the fresh idea to easier the process of making boat that can give comfort for worker and customer. By creating the mould of boat, it can help the worker to reduce their heavy job and shorting the waiting time for customer.

## **1.5 Project Planning**

The project planning for our project is to design our mould to build a Payang boat. Instead of that, we would like to draw first using the software, Rhyno6 then convert it into orthographic view to make more detail. The size of mould is based on the capacity of CNC machine which size from for one mould, length 1800mm, wide 600mm and height 600mm. After that, the drawing will transfer into Powermill software then convert it into the CNC machine. The machine will cut the foam. However, based on pandemic session (Covid-19), our team only provide the process until the drawing only. All duration for each activity will base on the Gantt chart that has been make.

## **2.0 Problem Definition**

There are various method that used in the boatbuilding process, including the traditional method and the modern method. For a long time before, in the east coast Malaysia there are a lot of people that have special skills to be a craftsmanship in boatbuilding industry. Furthermore, boat is the main transport for them in their daily routine such as fishing, go to from one area to other area and etc. The people are mainly use the traditional method for a long period to build the Payang Boat. This can lead the lack of production time to produce a full specs of Payang Boat in passage of time.

To improve the production process of Payang boat, the engineer are build a modern method machine that can give a same production of Payang Boat with short duration of production process and less manpower consumption. The Payang Boat will produce by the CNC Machine which is using the foam or mould before produce the full specs of Payang Boat. This can help the future generation to be more advance and proactive in line with the modern revolution.

### **2.1 Problem Statement**

Payang Boat is a traditional boat in Malaysia that certainly used by fishermen about 4 decades ago. Nowadays, the Malaysian Traditional Payang Boat seen are rarely used among the fishermen around Malaysia including the most maritime transport user in East Cost of Peninsular Malaysia (Terengganu, Kelantan, Pahang) due to the pressure of modernization variety types of boat. The Traditional Payang Boat also difficult in obtaining the timber resources, and had the higher cost of boat maintenance compared to other types of boat that using the polyurethane foam mould.

In addition, the cost for obtain the timber resources also more expansive than polyurethane foam mould because it must use the high quality of timber like ironwood tree so that the ship can be used approximately 30 years. Furthermore, the shipbuilding of Traditional Payang Boat method must take a long period to finish the fully complete of hull design of the ship. The process also not using any machinery power, the traditional process method mostly use the man power resources. The man power resources that involve in traditional method process of shipbuilding should had the high skill. So it can be lead the high cost for salary payment for the workers or craftsman.