UNIVERSITI TEKNOLOGI MARA

TECHNICAL REPORT

ANALYSIS OF CORD DISPLACEMENT FOR SAFE BUNGEE JUMPING BY USING ORDINARY DIFFERENTIAL EQUATION AND NEWTON LAW

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IN THE NAME OF ALLAH, THE MOST GRACIOUS, THE MOST MERCIFUL

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ABSTRACT

Extreme sports such as Bungee Jumping, Rock Climbing, and Flying Fox are currently trending among teenagers and also them who loves outdoor activities. This is because these kinds of activities are challenging and exciting. This kind of sports also trains people to go against their fear. In Bungee Jumping, for instance, people were trained to go against the fear of jumping from a high platform. Caution steps must be taken to avoid an accident to occur. Thus, this paper proposed the calculation of the safe jump regardless of the weight, height and also type of cord used during the jump. The writer aimed to identify factors involved in the bungee jumping sport and also calculate the displacement of the jumper using the Differential Equation method in order to make sure the safety of every jump. While writing this paper, the writer experienced jumping at the Sunway Lagoon Extreme Park. Their jumping was recorded and few data were collected. Different data of jump were next calculated using Differential Equation to compare the result from the actual jump they the writers get from the observation and collection from the Sunway Lagoon. Later, the calculation was compared with the actual data. The safety jump is determined by the lower percentage error when the writers compare the results with the actual data. Thus, the method used is easy, understandable and reliable to even be used to any other field of mathematics with a wide range of cases and phenomenon.