



**COMPUTER SIMULATION AND TURBINE DEVELOPMENT FOR FREE  
FLOWING WATER GENERATOR**

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A thesis submitted in partial fulfillment of the requirements for the award of  
Bachelor Engineering (Hons) Mechanical

**Faculty of Mechanical Engineering  
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**MAY 2010**

## ACKNOWLEDGEMENT

Alhamdulillah and thanks to ALLAH SWT, The Al Mighty and a lot of prayers to our beloved Prophet MUHAMMAD SAW that gave us the opportunities to finish and complete this report.

*First of all, I would like to express our sincere gratitude and appreciation to my lecturer Prof. Madya Dr. Hj Rahim Atan for his continuous support, generous guidance, helps, patience and encouragement in the duration of the project preparation until its completion.*

I would also like to thank my parents for all of their support via morale and specifically via economy. Besides, I also like to thank my team members and our fellow friends with their fervent helps in finding out the information, generate some ideas and improve my feebleness in case solutions to us to accommodate in this project.

Lastly, thanks to each person that involved either direct or indirect in helping, giving any ideas, data, co-operations, suggestions, critics and comments. I would like to apologize to all for my mistakes during completion of my report

## **ABSTRACT**

Hydroelectric is an alternative way to convert mechanical energy into electricity by harnessing the flow of the rivers to run a turbine. The suitable design of river water turbine is needed to make sure that it maintains speed with flow rate at variable season during monsoon and drought. In order to complete the design of turbine system on engineering software such as CATIA and STAR CD is used. The complete design of turbine system will be attached to the turbine platform to make sure that the maximum and minimum speed can be achieved and strength of the turbine system is attained. CAE analysis will be conducted for further simulation of the turbine during operation. Once the analysis and evaluation stage completed and had been approved, then it is attached to the generator. The design of the turbine can avoid environmental damage such as land erosion, jungle flooding and lots of flora and fauna. No dam or weir is used in order to rotate the turbine. By finishing this thesis, the author hopes that the turbine can be further develop for commercial used in the future and a self-sustainable community can be achieved, without fully depends on the oil-based power generation. The system will be tested at Kuala Keniam River, UiTM-Pehilitan Research Station and investigated the water turbine performance and efficiency. If everything works as planned, progress of fabrication until installation process will proceeds smoothly and successful.

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