

**Design Continuous Variable Transmission for Shell Eco Marathon
Asia 2012 (SEM2012)**

By:

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Dissertation submitted in partial fulfillment of
the requirements for the
Bachelor of Engineering (Hons)
(Mechanical Engineering)

MAY 2012

UNIVERSITI TEKNOLOGI PETRONAS
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CERTIFICATION OF APPROVAL

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By:

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A project dissertation submitted to the
Mechanical Engineering Programme
Universiti Teknologi PETRONAS
in partial fulfillment of the requirement for the
BACHELOR OF ENGINEERING (Hons)
(MECHANICAL ENGINEERING)

Approved by,

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CERTIFICATION OF ORIGINALITY

This is to certify that I am responsible for the work submitted in this project, and the original work is produced on my own except as specified in the references and acknowledgement, and it has not been undertaken or done by unspecified sources or person.

MOHD SYAFIQ BIN MOHD RUSLAN

ACKNOWLEDGEMENT

First and foremost, the author would like to thank The Most Merciful and The Most Gracious as without His help, the author will not be able to complete this project. This project would not have been possible without the help and assistance from certain individuals and organization.

Firstly, the author would like to express his utmost appreciation to his supervisor, Ir. Dr Masri Bin Baharom which had given full supervision, guidance, training and also inspiration to complete the project. The author has much benefited from him valuable knowledge and also experience. Without his contribution, this project would not be accomplished.

Secondly, the author would like to convey a word of sincerest gratitude to Mr. Mohd Syaifuddin bin Mohd and Dr. Zainal Ambri Bin Abdul Karim for sharing the experiences and giving guidance during the completion of the project.

Last but not least, special thanks dedicated to Mechanical Engineering Department and the lecturers for assisting the author in term of knowledge, equipment, and also support. Not to forget to all related parties who have been involved in this project directly or indirectly in making this project completed.

For those who has assisted the author in completing the project, but the name is not mentioned here, the author would like to thank for all the contribution and supports.

Thank you very much.

ABSTRACT

This report describing a project entitled Design Continuous Variable Transmission for Shell Eco Marathon Asia 2012 (SEM2012). A brief about Shell Eco marathon competition will be included, as well as purpose of this project to improve the fuel efficiency. Due to the purpose of reducing the fuel consumption during the race, the analysis is accomplished through the equations and expected drive cycles to get the fuel consumption of the car. Theory developed for this project will be focuses on a case study using the CVT applied to the GEN89 urban concept car which need to have a reliable and inexpensive method for CVT tuning. Previous approaches to CVT tuning were strictly empirical and involved mechanical component replacement in a slow and expensive trial and- error optimization loop. The methodology for this project is creating the expected drive cycle for Sepang International Circuit with the expected fuel consumption, then compare it to the actual result during competition and fine up the best combination of primary pulley and secondary pulley tuning, thus determine the gear ratio produce by the CVT. This project find that CVT will promote advantage of improving fuel efficiency relating to Sepang drive cycle, provide smooth uninterrupted power without step discontinuities, accelerate without jerk and also naturally changes ratio continuously leads to steady acceleration.

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