

**Effect of Different Welding Tool Pin Shapes on Friction Stir Welding Plates
Microstructure**

by

Ummu Hani Ilias

Supervisor: Dr. Mokhtar Awang

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

JANUARY 2012

Universiti Teknologi PETRONAS
Bandar Seri Iskandar
31750 Tronoh
Perak Darul Ridzuan.

CERTIFICATION OF APPROVAL

**Effect of Different Welding Tool Pin Shapes on Friction Stir Welding Plates
Microstructure**

by

Ummu Hani Ilias

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

Approved by,

(Dr. Mokhtar Awang)

UNIVERSITI TEKNOLOGI PETRONAS
TRONOH, PERAK

January 2012

CERTIFICATION OF ORIGINALITY

This is to certify that I am responsible for the work submitted in this project, that the original work is my own except as specified in the references and acknowledgements, and that the original work contained herein have not been undertaken or done by unspecified sources or persons.

(UMMU HANI ILIAS)

ACKNOWLEDGEMENT

First of all, I would like to express my gratitude and praise to God for His guidance and blessings upon completion of the Final Year Project 2011. Special thanks to my supervisor, Dr Mokhtar Awang and my co-supervisor Dr Azmi Abdul Wahab for their guidance and advices throughout this project. I would like to extend a special thank you to my family and friends for moral supports and motivations in helping me all the way throughout this project. Thank you to all Universiti Teknologi PETRONAS lecturers, technicians and everyone involved, directly or indirectly for helping me upon my completion of this Final Year Project. God bless you.