AMMP CENTRE

BULLETIN

A monthly bulletin for Centre of Advanced Manufacturing and Material Processing & Zecttron Sdn Bhd

Conducting World Class Research

March & April 2014 Issue 14

Welcome to the AMMP CENTRE Bulletin. We would like to update you on:

Postgraduate Meeting with Centre Head Prof. Mohd Hamdi Abd. Shukor

14th March 2014 A meeting between postgraduate students of AMMP was held with our centre head, Professor Hamdi in the Green Cube, Engineering Faculty.

He gave an overall view of the importance of market driven & output driven research. Further emphasised was the need to established network and encouraged students to grab research exchange opportunities. In this meeting, Professor Hamdi has also endorsed the continuation of the periodic centre-wide research presentation which will be co-ordinated by Dr Reza Mahmoodian.

It is hoped that the presentation events would foster knowledge sharing across a wide variety of expertise amongst the postgraduates and members of AMMP Centre.

Ti-Based Functionally Graded Coating

Coating techniques are commonly used in the ceramic-lined piping industries. However, the obtained ceramic layers are too brittle and fail under piping processes such as branching and making orifices. This is in consequence to improper manufacturing techniques, which do not guarantee functionally graded coatings or the local reinforcement of coatings. Therefore, to overcome such setbacks, a research focused on the development of manufacturing techniques for in-situ, locally reinforced composites with good mechanical properties has been conducted. Various manufacturing techniques for the fabrication of ceramic and composite coatings have been proposed, designed, and implemented. Titanium carbide, silicon carbide, and alumina composite phases were processed under different manufacturing conditions. The developed centrifugal self-propagating high-temperature synthesis (SHS) technique helped to fabricate an in-situ titanium carbide-alumina-iron composite with several intermetallic phases successfully. The SHS reaction under centrifugal force design was such as to combine with a chain reaction between titanium and carbon elemental powders.

The developed centrifugal-assisted thermite method served to fabricate ceramic products in embedded and offset specimen positions. Evidently, the centrifugal force facilitated the formation of multi-component products and particle segregation during the process. In addition, centrifugal acceleration had a significant effect on both metallurgical alloying and mechanical interlocking between different sample layers when forming in-situ functionally graded coating with enhanced hardness and good fracture toughness.

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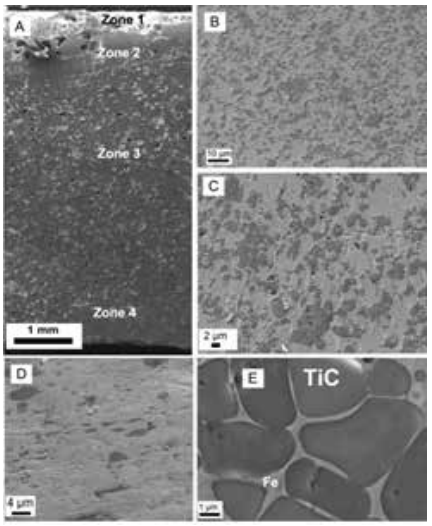

Electron microscopy micrographs of a typical point on the Ti-based functionally graded coating: (A) the overall view of the cross-section with different zones; (B), (C) and (E) the cross-sections at higher magnifications of Zone 3 and Zone 4; (D) the view of the surface at the back of the sample in Zone 4

Zecttron

"Fundamental CNC Lathe Machining Workshop on 9th to 12th June 2014"

Level: Fundamental
Duration: 4 Days (32 Hours)
Time: 9:30 AM - 4:30 PM
Venue: Engineering Tower, Faculty of Engineering, University of Malaya
Cost: RM1799
(RM200 Discount each for 3 pax registration)
Deadline: June 2, 2014
Benefit: Certificate of University of Malaya, CPD points, lunch and refreshment included.
Contact us at: training@zecttron.com,
Tel. No. : 03 7967 4489, Fax.: 03 7967 7669 or
Mobile No. : 017 3580491 (Khairul)

Overview

This course is designed to provide the knowledge and skills required to create a CNC program that will convert stock material into a finished product. The student will be capable of defining the list of required processes, their logical / optimum sequence, create the complete CNC part program, install the appropriate tools correctly, establish the program zero point, and perform corresponding tool offsets. The course emphasis is structured to include classroom instructional theory and hands on operation.

This course will give the student the tools to understand how to program a coordinate measuring machine (CMM). As a basic class the student will explore the fundamental steps to developing a CMM program by writing their own programs and learning how to interpret the data.

Objective

The objective of this course is to introduce fundamental aspects of computer numerical control and associated modern programming CAM software in metal cutting. Intense hands on experience on CNC machines, and part manufacture will be included in the lecture.

Who is this course for?

This CNC course design for all level Engineers, Engineering Executives, Technicians and Students who wish to use it in industry or personal use.

What you will learn?

Working effectively in an engineering environment, engineering principles and Principles of Mechanical and Manufacturing and Engineering CNC Machining and Computer Intergrated Manufacturing.

New Industrial Trainee

En. Shaifol Nizam B. Hashim a lecturer from Kolej Kemahiran Tinggi Mara Kuantan (KKTM), came to AMMP Centre to visit and evaluate his internship student's performance. The interns were supervised by Dr. Farazila Yusof and Dr. Mohd Sayuti Abd Karim.

Discussion between En. Shaifol Nizam with The Interns Supervisor.

The interns are measuring CNC Lathe for designing the new frame.

Drafting the new CNC Lathe frame.

Achievements

Best Biotechnology Award

Congratulations to Prof. Dr Mohd Hamdi Abdul Shukor, Prof. Ramesh Singh, and Dr Tan Chou Yong has received an additional JIPA award, the BEST BIOTECHNOLOGY AWARD conferred by the Japan Intellectual Property Association in conjunction with the Malaysian Technology Expo 2014.

The title of innovative product is:
Innovation: Production of high quality Bo-HA with natural structure from bovine bone
Awards: Gold Medal
JIPA Award from Best Biotechnology.

The AMMP Centre was established in 2002 with the aim of strengthening research activities in advanced manufacturing and material processes. The team has evolved from a small discussion platform of like-minded researchers to a fully operational research and consultation group in University of Malaya. Throughout the years, AMMP Centre has secured substantial research funding and commercialisation grants from both local and international sources. In addition, the Centre has completed a number of consultation work with the industry in developing customised apparatus and solutions for their needs.

The AMMP Bulletin is produced periodically. It is distributed among lecturers, students snd staff of University Malaya. By following our monthly bulletin, you will be kept up to date with the latest AMMP Centre news and activities. See our website for further details: ammp.um.edu.my/v2 or email ammp@um.edu.my.

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