

M. Tech. (CAD/CAM)

The details of experiential learning are described in this document. Kindly refer to the respective pages as shown in the tables below for the courses offered in various academic sessions.

Year 2016-17

Course Title	Year of offering	Name of Students	Page no
DISSERTATION	2017	All Students, 4th Sem M.Tech CAD/CAM	02-04

Year 2015-16

Course Title	Year of offering	Name of Students	Page no
DISSERTATION	2016	All Students, 4th Sem M.Tech CAD/CAM	02

Year 2014-15

Course Title	Year of offering	Name of Students	Page no
DISSERTATION	2015	All Students, 4th Sem M.Tech CAD/CAM	02

M. Tech. DISSERTATION: A dissertation is a written document that summarizes the research work of student; this work represents the scholar’s research and findings. The dissertation is supervised by faculty member and assessed by external examiner. The evaluation criteria usually includes the complete implementation of the proposed research work and the dissertation report submitted including research gap, research objective, literature survey, tools used, design, development, analysis, results and future implementation.

CAD/CAM dissertation can be implemented by a number of tools such as Catia, ANSYS, NISA, Matlab, Solidworks, NASTRAN, HYPERMESH, PRO/E, Design Expert, Minitab, Fluent etc.

Some of the dissertation submitted by students can be listed as Optimization of Process Parameters for Surface Roughness of CNC Vertical Milling Machine, Multi Objective Process Parameter Optimization in Friction Stir Welding, Study of Mechanical Properties of Thermal Spray Coating AISI 4041 Carbon Steel by varying Nickel Composition, Effect of Process Parameters on Mechanical Properties welded joints of AA7075, Investigation on Wear Characteristics of SS 304 using Nickel based Powder by using Microwave Processing Root, Design, Analysis and Shape Optimization of Heavy Commercial Vehicle Leaf Spring by using FEM etc.

Experiential Activity: Project Development

S.no	Dissertation Title	Year	Student Name
1	Effect of Nickel Composition on Mechanical properties of thermal sprayed coated AISI 4041 Carbon Steel	2017	Farooq Ahmad Chopan

A sample of Dissertation Title “**Effect of Nickel Composition on Mechanical properties of thermal sprayed coated AISI 4041 Carbon Steel**” is attached next.

ABSTRACT

Thermal spray coating is a process of depositing the feedstock on to a compatible surface for the enhancement of wear properties. The process is called surface coating because the deposited surfaces are harder than that of base metal. Thermal spray coating is one of the most useful and economical way to improve the wear performance of a component. Surface properties and quality achieved of the hard faced component depends upon the selected coating powder and the coating process used for properties improvement. High Velocity Oxyfuel (HVOF) is most commonly used process for coating due to its easy availability and versatility of operation. AISI 4140 carbon steel is selected for the present work as substrate material due to its use in oil and gas pipelines. In the present work a detailed study was done to study the effect of different compositions of Nickel powder in Ni-Cr-Mo-Fe on AISI 4140, deposited by HVOF coating process.

Three different compositions of metal powder had been chosen for coating material. The investigation was done on three categories of samples prepared by these compositions. Various rigorous tests were carried out on the batch of 3 samples per category i.e. total nine samples. Wear test and micro-hardness test were done to record the observations. Wear test was performed on dry wear and friction testing machine. It was observed that Ni 60% is the best composition in terms of deposit quality, hardness achieved, and wear rate among the three compositions in study. It was observed that with an increase in Ni content there is an increase in microhardness values as well as the wear resistance is also improved. Best microhardness was obtained at higher powder feed rate that is 26 gram/minute.



CANDIDATE'S DECLARATION

I hereby certify that the work which is being presented in the dissertation, entitled "Effect of Nickel Composition on Mechanical Properties of Thermal Sprayed Coated AISI 4041 Carbon Steel" by "Mr. Farooq Ahmad Chopan" in partial fulfillment of the requirement for the award of degree of M. Tech. (Manufacturing Engineering) submitted in the Department of Mechanical Engineering at Panipat Institute of Engineering and Technology, Samalkha affiliated to Kurukshetra University, Kurukshetra is an authentic record of my own work carried out during a period from May,2017 to Dec.,2017 under the supervision of Sh. Gyander Ghangas and Sh. Sunil Dhull, Assistant Professor, Department of Mechanical Engineering. The matter presented in this dissertation has not been submitted by me in any other University/Institute for the award of any degree.



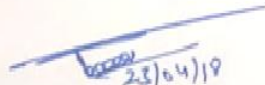
Farooq Ahmad Chopan

Univ. Roll No. 28150043

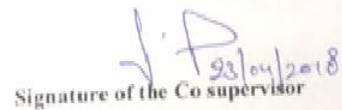
This is to certify that the above statement made by the candidate is correct to the best of my/our knowledge

Signature of the supervisor

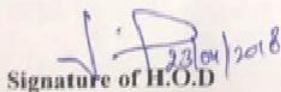
The M. Tech Viva -Voce Examination of Farooq Ahmad ^{Chopan} has been held on 23-07-2018 and accepted.



Signature of the supervisor



Signature of the Co supervisor



Signature of H.O.D

Signature of Examiner



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