On-going Projects, 2013

1. Development of CFD codes
2. Multi-objective maintenance management using nature-inspired optimization algorithm: Application to industrial gas turbines
3. LES simulation of cycle-to-cycle variation of in-cylinder air flow in naturally aspirated and highly boosted SI engines
4. Robotic arm
5. The renewable energy application for oil and gas plant
6. Imitating the morphology of dolphin skin to create nanoparticle coating onto the body surfaces of land locomotion to potentially increase aerodynamic efficiency reduced drag and power consumption
7. Design and development of portable water turbine with bumps and leading edge of the blades
8. Comparison between experimental and finite element modelling of orthogonal cutting of AISI 1045 steel
9. Size optimization of mechanical parts using hybrid intelligent system
10. Short term multi-state reliability prediction using hybrid intelligent systems
11. Utilization of agro-industrial waste based silica particles in aluminium metal matrix composite material
12. Energy and material assessment for a combined cycle power plant
13. Bearing fault detection and diagnostic using hybrid intelligent system
14. A chance constrained approach to eco-management of tri-generation plants
15. Theoretical modelling and experimental verification of wear rate in turning process
16. Selection of solder bond material for optimum thermo-mechanical performance in electronic packaging
17. Design and development of self-sustaining offshore fish farm
18. Numerical investigation of palm oil biodiesel distillation efficiency in a two-phase horizontal flow reactor by the precise control of temperature distillation
19. Modelling of temperature distribution when orthogonally machining high speed steels
20. Simulation and analysis of stress distribution when machining advanced material
21. Effect of cutting fluid on surface roughness of end-milled mild steel components
22. Mechanical and wear properties of nature fibre and nano-particles reinforced polypropylene components
23. Characterization of natural fibre reinforced polymer composite
24. Design and development of subsonic wind tunnel
25. Aerodynamic study on dimpled surface vehicle
26. Modelling molten carbonate fuel cell
27. Comparison between experimental and finite element modeling of orthogonal cutting of AISI 1045 Steel
28. Controller design for heavy duty gas turbine (110 MW Gas turbine power-plant Miri)
29. A 3D finite element modelling and simulation of turning process
30. Correlating tool/nose wear and surface roughness in finish turning of AISI 1045 steel
31. Magnetohydrodynamics
32. Simulation of particle-embedded flow through a porous media
33. The study of the impact of BHA deflection on wellbore positional accuracy
34. Development of a parallel closed loop valveless impedance pump
35. Development of a valveless impedance pump
36. Development of an electro-mechanical vibro-impact machine

37. Computational study of an electro mechanical vibro-impact machine with fluid interaction
38. Characteristic study of wave behaviour in a multi-stage impedance pump
39. Computational study of a parallel valveless impedance pump
40. Geometry effects in the indentation of soft materials
41. Characterization of the mechanical properties of fractal based structural design
42. Characterization of the properties of pelletized biofertilizers
43. Use of FFT to determine wear rate measurement of cutting tool from the surface profile of turned work piece
44. Spectral analysis of 2D image of turned work piece
45. Chip Morphology with FEA and simulation in turning of stainless steel 1045
46. Vibration and chatter analysis of turning operation using FEA
47. High speed imaging of machining operation using vision system
48. Waste plastic based natural fibre filled biopolymer composite
49. Bond material selection formulization for electronic packaging industry
50. Natural fibre filled hybrid biopolymer composites
51. Effect of cutting fluid on cutting forces and power and surface roughness of end-milled mild steel composite
52. CFD study of the effect of bed diameter, sand size and temperature on hydrodynamic of fluidization bed
53. CFD modelling on solid circulation of a compartmented fluidized bed gasifier
54. CFD modelling on hydrodynamics of binary mixture fluidized bed
55. Laminar flow mixed convection heat transfer for thermally developing flow in horizontal cylinder with radiation effects
56. Laminar flow mixed convection heat transfer for the hydro-dynamically developed and thermally developing flow in horizontal cylinder with radiation effects
57. Experimental study on natural convection heat transfer of horizontal ducts with differentially heated wall with radiation effect
58. Design and power analysis of lawn mower internal combustion engine
59. Design and analysis of gear box
60. Simulation and analysis of stress and temperature distribution when machining high speed steel alloys
61. Simulation and analysis of stress distribution when machining nickel based alloys
62. Simulation and analysis of stress distribution when machining advanced ceramics by end milling process
63. Simulation of the drying process of cocoa beans
64. Simulation of the denaturation process of a soft-boiled egg
65. Design and manufacture of a manual grease gun
66. Hybrid intelligence approach to surface roundness parameter prediction