



# SPECTRUM SOLUTIONS

Pondicherry, India

*Approved by Indian Government under Section 21*

FABRICATION		
S.No	TITLES	
S3I01	Fabrication of Height Rejection Based on Material Handling System Using by Pneumatics	
S3I02	Fabrication of Length Rejection Based on Material Handling System Using by Pneumatics	
S3I03	Fabrication of Accident Alert System using Force Measurement	
S3I04	Fabrication of Effective Power Saving Escalator System	
S3I05	Fabrication of Automatic Direction Control System for conventional Lathe	
S3I06	Fabrication of Automatic External Length Control System for Conventional Lathe	
S3I07	Fabrication of Thermo Electric Air Heater	
S3I08	Design and Analysis of Pneumatic Gripper In Variable Pressure for Material Handling System	
S3I09	Automatic Accident Avoiding system in Pneumatic bend& Bend removing machine	
S3I10	Automatic bar Speeding Mechanism for cutting machine	
S3I11	Automatic board cleaner	
S3I12	Automatic Electro Hydraulic Jack for Four wheeler	
S3I13	Automatic paint Spraying Machine	
S3I17	Automatic Power Saving Punching conveyor	
S3I19	Fabrication of Cylindrical Grinding Machine	
S3I21	Four axis material Handling Robot	
S3I22	Automatic bottle washing machine	

## 2015-2016 Mechanical Project Titles

<b>CNC TURNING &amp; MILLING PROJECT</b>	
<b>S3I51</b>	optimization of Machining Parameters for Face Milling Operation on Delrin in a Vertical CNC Milling with Dry Condition
<b>S3I52</b>	Experimental investigation of various machining parameter for optimum surface roughness of Industrial Plastics(POLYAMIDE)
<b>S3I53</b>	Surface Roughness Prediction Modeling for AISI 4340 after Ball End Mill Operation using ANOVA
<b>S3I54</b>	Experimental Investigation of Various Machining Parameter to increase the surface finish of die steel with Various inserts
<b>S3I55</b>	Prediction of machining parameters for optimum Surface Roughness in turning SS 304&SS410(CONVENTIONAL)
<b>S3I56</b>	Performance evaluation of coating materials and process parameters optimization for surface quality during turning of AISI 410 austenitic stainless steel
<b>S3I57</b>	Optimization of Turning Process Parameters for Their Effect on En 21Material Work piece Hardness by Using ANOVA Optimization Method
<b>S3I58</b>	Analysis and Prediction of Machining Parameter for Optimum Surface Roughness In Turning SS410 Through ANOVA Technique
<b>S3I59</b>	Prediction of Machining Parameter for Optimum Surface Roughness in Turning SS304 Through ANOVA Technique
<b>S3I60</b>	Prediction of Machining Parameters for Nose Radius Analysis For Optimum surface Roughness in Turning SS304 Through ANOVA Technique
<b>S3I61</b>	Comparative Performance Evaluation of PVD coated and CVD Coated Inserts in CNC Turning of EN19&EN31
<b>S3I62</b>	Comparative Performance Evaluation of PVD coated and CVD Coated Inserts in CNC Turning of EN8&EN47
<b>S3I63</b>	Comparative Performance Analysis of Insert Geometry for Turning Operation on CNC Turning Centre
<b>S3I64</b>	Optimization of Machining Parameters for Face Milling Operation in A Vertical CNC Milling Machine USING ANOVA
<b>S3I65</b>	Some experimental investigation of optimizing single point tool wear by using cryogenic technique using EN8 steel with Ansys results
<b>S3I66</b>	Experimental Investigation And Process parameter Optimization in CNC Turning on EN8 Steel by using Taguchi Technique
<b>S3I67</b>	Experimental Investigation and Process Parameter Optimization in CNC Turning on EN19 Steel by using Taguchi Technique
<b>S3I68</b>	Experimental Investigation and Process Parameter Optimization in CNC Turning on EN21 Steel by using Taguchi Technique
<b>S3I69</b>	Experimental Investigation and Process Parameter Optimization in CNC Turning on EN24 Steel by using Taguchi Technique
<b>S3I70</b>	Experimental Investigation and Process parameter Optimization in CNC Turning on

	EN31 Steel by using Taguchi Technique
<b>S3I71</b>	Experimental Investigation and Process Parameter Optimization in CNC Turning on EN47 Steel by using Taguchi Technique
<b>S3I72</b>	Experimental Investigation and Process Parameter Optimization in CNC Turning on EN36 Steel by using Taguchi Technique
<b>S3I73</b>	Experimental Investigation and Process Parameter Optimization in CNC Turning on SS302 Steel by using Taguchi Technique
<b>S3I74</b>	Experimental Investigation and Process parameter optimization in CNC Turning on SS304 Steel by using Taguchi Technique
<b>S3I75</b>	Experimental Investigation and Process parameter optimization in CNC Turning on SS310 Steel by using Taguchi Technique
<b>S3I76</b>	Experimental Investigation and Process parameter optimization in CNC Turning on SS316 Steel by using Taguchi Technique
<b>S3I77</b>	Experimental Investigation and Process parameter optimization in CNC Turning on SS420 Steel by using Taguchi Technique
<b>S3I78</b>	Experimental Investigation and Process parameter optimization in CNC Turning on SS430 Steel by using Taguchi Technique
<b>S3I79</b>	Comparative Performance Analysis of Insert Geometry for Turning Operation on CNC Turning Centre
<b>S3I80</b>	Evaluation of Machinability of D3 Steel and Cryo-Treated PCBN with untreated Carbide Inserts Using Taguchi Technique
<b>S3I81</b>	Evaluation of Machinability of H13 Steel and Cryo-Treated CBN with Untreated Carbide Inserts Using Taguchi Technique
<b>S3I82</b>	Evaluation of Machinability of Tool Steel and Cryo-Treated Cermets with Untreated Cermet Inserts Using Taguchi Technique
	<b>CNC VERTICAL MILLING</b>
<b>S3I85</b>	An Experimental Investigation of GFRP Surface Property and Process Parameter on CNC Milling Machine
<b>S3I86</b>	An Experimental Investigation of D2 Surface property and Process Parameter on CNC Milling Machine
<b>S3I87</b>	An Experimental Investigation of EN8 Surface property and Process Parameter on CNC Milling Machine
<b>S3I88</b>	An Experimental Investigation of EN19 Surface property and Process Parameter on CNC Milling Machine
<b>S3I89</b>	An Experimental Investigation of EN21 Surface property and Process Parameter on CNC Milling Machine
<b>S3I90</b>	An Experimental Investigation of EN24 Surface property and Process Parameter on CNC Milling Machine
<b>S3I91</b>	An Experimental Investigation of EN31 Surface property and Process Parameter on CNC Milling Machine
<b>S3I92</b>	An Experimental Investigation of EN36 Surface property and Process Parameter on CNC Milling Machine
<b>S3I93</b>	An Experimental Investigation of EN47 Surface property and Process Parameter on CNC Milling Machine

<b>S3I94</b>	AN Experimental Investigation of HDS11 Surface Property and Process Parameter on CNC Milling Machine
<b>S3I95</b>	An Experimental Investigation of OHNS Surface Property and Process Parameter on CNC Milling Machine
<b>CNC DRILLING &amp; BORING</b>	
<b>S3I96</b>	Experimental Investigation of Geometrical Effect on SS410 Dry and Wet Condition in CNC Drilling with Various Process Parameters
<b>S3I97</b>	Experimental Analysis and Geometrical Effect on EN8 Dry and Wet Condition in CNC Drilling With Various Process Parameters
<b>S3I98</b>	Experimental Analysis and Geometrical Effect on EN19 Dry and Wet Condition in CNC Drilling With Various Process Parameters
<b>S3I99</b>	Experimental Analysis and Geometrical Effect on EN21 Dry and Wet Condition in CNC Drilling With Various Process Parameters
<b>S3I100</b>	Experimental Analysis and Geometrical Effect on EN24 Dry and Wet Condition in CNC Drilling With Various Process Parameters
<b>S3I101</b>	Experimental Analysis and Geometrical Effect on EN31 Dry and Wet Condition in CNC Drilling With Various Process Parameters
<b>S3I102</b>	Experimental Analysis and Geometrical Effect on EN36 Dry and Wet Condition in CNC Drilling With Various Process Parameters
<b>S3I103</b>	Experimental Analysis and Geometrical Effect on EN47 Dry and Wet Condition in CNC Drilling With Various Process Parameters
<b>S3I104</b>	Experimental Analysis and Geometrical Effect on SS302 Dry and Wet Condition in CNC Drilling With Various Process Parameters
<b>S3I105</b>	Experimental Investigation of Geometrical Effect on SS304 Dry and Wet Condition in CNC Drilling with Various Process Parameters
<b>S3I106</b>	Experimental Investigation of Geometrical Effect on SS310 Dry and Wet Condition in CNC Drilling with Various Process Parameters
<b>S3I107</b>	Experimental Investigation of Geometrical Effect on SS316 Dry & Wet Condition in CNC Drilling with Various Process Parameters
<b>S3I108</b>	Experimental Investigation of Geometrical Effect on SS420 Dry & Wet Condition in CNC Drilling with Various Process Parameters
<b>S3I109</b>	Experimental Investigation of Geometrical Effect on SS430 Dry and Wet Condition in CNC Drilling with Various Process Parameters
<b>S3I110</b>	Experimental Investigation and Process parameter optimization of EN36 Die Steel with Coated and HSS Drill Bits Using Taguchi Technique

<b>WELDING PROJECTS</b>	
<b>S3I151</b>	Analysis and Experimental Investigation of Weld Characteristics and Bead Geometry Analysis for Dissimilar Stainless Steel 410
<b>S3I152</b>	Prediction of Weld Bead Geometry Analysis for Dissimilar (Al LM6&Al LM25) Metal Matrix Composites

<b>S3I153</b>	Prediction of Weld Bead Geometry Analysis for AIL M6 Metal Matrix Composites
<b>S3I154</b>	Prediction of Weld Bead Geometry Analysis Foral LM25 Metal Matrix Composites
<b>S3I155</b>	Analysis and Experimental Investigations of Weld Characteristics and Bead Geometry for SS304 Through GMAW
<b>S3I156</b>	Analysis and Experimental Investigations of Dismilar Weld Characteristics and Bead Geometry for SS304&SS410 Through GMAW
<b>S3I157</b>	Analysis and Optimization of Cutting Parameter in Plasma Cutting of ss410
<b>S3I158</b>	Optimization of Cutting Parameter in Plasma Cutting on Mild steel Thin Plates With Various Thickness and Constant parameter
<b>S3I159</b>	Experimental investigation in arc welding parameter to reduce the Residual stress analysis for avoid cold cracks
<b>S3I160</b>	Analysis and Experimental Investigations of Weld Characteristics For A Single Pass Tig Welding With SS304
<b>S3I161</b>	Analysis and Experimental Investigations of Weld Characteristics for A Mig Welding with Ss410
<b>S3I162</b>	Analysis and Experimental Investigation of Weld Characteristics for a TIG Welding with SS304L&410
<b>S3I163</b>	Analysis and Experimental Investigations of Weld Characteristics For A TIG Welding with SS304 & 410L
<b>S3I164</b>	Analysis and Experimental Investigations of Weld Characteristics for A MIG Welding with SS304&410L
<b>S3I165</b>	Some Experimental Investigation and Improvement in Mechanical Properties of stainless Steels Welded by GMAW and GTAW
<b>S3I166</b>	Analysis and Experimental investigation of Weld Characteristics and Bead Geometry Analysis for Stainless Steel 202
<b>S3I167</b>	Analysis and Experimental investigation of Weld Characteristics and Bead Geometry Analysis for Stainless Steel 304
<b>S3I168</b>	Analysis and Experimental investigation of Weld Characteristics and Bead Geometry Analysis for Stainless Steel 316
<b>S3I169</b>	Experimental Analysis of Weld Characteristics of Stainless Stell 409
<b>S3I170</b>	Analysis and Experimental investigation of Weld Characteristics and Bead Geometry analysis for stainless Stell 410
<b>S3I171</b>	Analysis and Experimental investigation of Weld Characteristics and Bead Geometry analysis for stainless Stell 416
<b>S3I172</b>	Analysis and Experimental investigation of Weld Characteristics and Bead Geometry analysis for stainless StellEN8
<b>S3I173</b>	Experimental investigation of Bead Geometry analysis for stainless StellEN19
<b>S3I174</b>	Analysis and Experimental investigation of Weld Characteristics and Bead Geometry analysis for stainless StellEN21
<b>S3I175</b>	Analysis and Experimental investigation of Weld Characteristics and Bead Geometry analysis for stainless StellEN24
<b>S3I176</b>	Analysis and Experimental investigation of Weld Characteristics and Bead Geometry analysis for stainless StellEN31
<b>S3I177</b>	Analysis and Experimental investigation of Weld Characteristics and Bead Geometry analysis for stainless StellEN36

<b>S3I178</b>	Analysis and Experimental investigation of Weld Characteristics and Bead Geometry analysis for stainless Steel EN47
<b>GMWA WELDING</b>	
<b>S3I179</b>	Analysis and Investigation of D2 Steel Weldment with Various process parameter Using GMWA Welding
<b>S3I180</b>	Analysis and Investigation of D3 Steel Weldment with various process parameter using GMWA Welding
<b>S3I181</b>	Analysis and Investigation of EN8 Steel Weldment with various process parameter using GMAW Welding
<b>S3I182</b>	Analysis and Investigation of EN19 Steel Weldment with Various Process Parameters using GMWA Welding
<b>S3I183</b>	Analysis and Investigation of EN21 Steel Weldment with Various Process Parameters using GMWA Welding
<b>S3I184</b>	Analysis and Investigation of EN24 Steel Weldment with Various Process Parameters using GMWA Welding
<b>S3I185</b>	Analysis and Investigation of EN31 Steel Weldment with Various Process Parameters using GMWA Welding
<b>S3I186</b>	Analysis and Investigation of EN36 Steel Weldment with Various Process Parameters using GMWA Welding
<b>S3I187</b>	Analysis and Investigation of SS302 Steel Weldment with Various Process Parameters using GMWA Welding
<b>S3I188</b>	Analysis and Investigation of SS304 Steel Weldment with Various Process Parameters using GMWA Welding
<b>S3I189</b>	Analysis and Investigation of SS316 Steel Weldment with Various Process Parameters using GMWA Welding
<b>S3I190</b>	Analysis and Investigation of SS410 Steel Weldment with Various Process Parameters using GMWA Welding
<b>S3I191</b>	Analysis and Investigation of SS416 Steel Weldment with Various Process Parameters using GMWA Welding
<b>GTAW WELDING</b>	
<b>S3I192</b>	Analysis and Investigation of D2 Steel Weldment with various Process Parameter using GTAW Welding
<b>S3I193</b>	Analysis and Investigation of D3 Weldment with various Process Parameter using GTAW Welding
<b>S3I194</b>	Analysis and Investigation of EN8 Steel Weldment with various Process Parameter using GTAW Welding
<b>S3I195</b>	Analysis and Investigation of EN19 Steel Weldment with various Process Parameter using GTAW Welding
<b>S3I196</b>	Analysis and Investigation of EN21 Steel Weldment with various Process Parameter using GTAW Welding
<b>S3I197</b>	Analysis and Investigation of EN24 Steel Weldment with various Process Parameter using GTAW Welding
<b>S3I198</b>	Analysis and Investigation of EN31 Steel Weldment with various Process Parameter using GTAW Welding
<b>S3I199</b>	Analysis and Investigation of EN36 Steel Weldment with various Process Parameter using GTAW Welding

<b>S3I200</b>	Analysis and Investigation of SS202 Weldment with various Process Parameter using GTAW Welding
<b>S3I201</b>	Analysis and Investigation of SS304 Weldment with various Process Parameter using GTAW Welding
<b>S3I202</b>	Analysis and Investigation of SS316 Weldment with various Process Parameter using GTAW Welding
<b>S3I203</b>	Analysis and Investigation of SS410 Weldment with various Process Parameter using GTAW Welding
<b>S3I204</b>	Analysis and Investigation of SS416 Weldment with various Process Parameter using GTAW Welding

### **COMPOSITE PROJECT**

S3I231	Experiment investigation to increase the Mechanical characterization of Aluminum with silicon carbide Composite	
S3I232	Evaluation of Marching Behaviors of Aluminium Metal Matrix Composite (Al+Sic+Zn)	
S3I233	Experimental Investigation of Machining Parameters for Turning AL+Sic+Mg Metal Matrix Composite	
S3I234	Mechanical Characterization of Aluminium Metal Matrix Composite (Al+Sic+flyash)	
S3I235	Experimental Investigation on Aluminium Metal Matrix Composite in EDM with Various Parameters(Al+Sic+Zn)	

### **EDM PROJECTS**

S3I236	Some investigation of Electrical discharge machining on OHNS steel with a copper and brass electrode to increases the surface finish and reduced the heat affected zone, lead time by varying machine parameter	
S3I237	Experimental Investigation of Machining Parameter for EDM Using Various Electrode on EN31 Tool Steel	
S3I238	Experimental Investigation of Machining Parameter for EDM using Various Material with Copper Electrode	
S3I239	Some Experimental Investigation on DIE Steel in Electric discharge Machining with various Parameter and Electrode	
S3I240	Process Parameter Optimization of WEDM Process of EN47 DIE STEEL	
S3I241	Performance Analysis and process optimization of EDM Parameter on Inconel 617 with copper Electrode	

### **PRESSTOOL PROJECT**

S3I242	Optimization of threading parameter by squeezing method with various metals in 16mm BSW thread to increasing tensile strength	
S3I243	Design and Analysis of Angle cutting Die to attain Exact Geometry at Cutting Face	
S3I244	Efficient Method of Producing Oval Punching holes on Sheet Metal with FEA Result	

**ANSYS PROJECT**

S3I251	Design and Finite Element Analysis of Leaf spring	
S3I252	Design and analysis of Ashok Leyland (2214) chassis under 25ton loading condition	
S3I253	Bending stress and fatigue analysis of connecting rod of Mahindra tractor through finite element method (ANSYS)	
S3I254	An Automation of Fatigue Durability Analysis for Welded Bogie Frame Using System Integration Techniques	
S3I255	Analysis of mechanical deformation in connecting rod using	
S3I256	Analysis of Thermal Distribution in Brake Drum of Maruthi Alto	
S3I257	Analysis of Thermal Distribution in Disk Brake	
S3I258	Experiment investigation to increasing the convection efficiency of radiator by using various brass alloys	
S3I259	Bending Analysis of Bolster Plate Bending For 150 Ton Power Press	
S3I260	Bending analysis of 150 ton crankshaft in power press	
S3I261	Bending Analysis of 40 ton truck spring leaf analysis	
S3I262	Modeling and structural analysis of cam shaft used in locaomotives	
S3I263	Design and analysis of Heavy truck chassis under 25ton loading condition	
S3I264	Bending stress and fatigue analysis of connecting rod of through fine element method	
S3I265	Design and analysis of Thermal Distribution in Fins Of Air compressor Cylinder of 3hp@25kg/cm <sup>2</sup>	
S3I266	Experimental Investigation & Analysis of Heat Transfer of Air Compressor Cylinder by Modifying External Fins Using Ansys.	
S3I267	Design and Fea Analysis of Breaking System	
S3I268	Finite Element Analysis of Residual Stress in the Welded Zone of a High corbon Steel to Avoid Cold Crack	
S3I269	Finite Element Analysis of The Feed Drive of the System in CNC Mcahine Driver	
S3I270	Static Analysis of plastic deformation for 25 ton hook	
S3I271	Numerical Modeling and Finite Element Analysis of Leaf Spring Analysis Leaf Spring	
S3I272	Optimization in of Design of Multi Speed Gear Box	
S3I273	Stress Twisting Torque Analysis of main shaft loads in all gear head lathe	
S3I274	Involutes gear analysis of Ashok Leyland ZF gear box	



<b>LASER CUTTING PROJECT</b>		
<b>S3I300</b>	Some Experimental Investigation of ND-YAG Laser Cutting of Thin Copper sheets	
<b>S3I301</b>	ND_YAG Laser Cutting of High Carbon Steels with Various Thickness and Constant Parameter	
<b>S3I302</b>	Experimental Investigation of ND_YAG Laser Cutting of SS Sheets with various Gases	
<b>S3I303</b>	Experimental Investigation of Laser Cutting of Low Carbon Steel Thin Sheets using O <sub>2</sub> Assist Gas	
<b>S3I304</b>	Some Experimental Investigation of ND-YAG Laser Cutting of High Carbon Steels	
<b>S3I305</b>	Experimental Investigation of ND-YAG Laser Cutting of High Carbon Steels with Various Gases	
<b>S3I306</b>	Analysis and Optimization of Cutting Parameter In ND-YAG Laser Cutting OF High Carbon Steels sheet	
<b>S3I307</b>	Experimental Investigation of ND-YAG LASER Cutting of High Carbon Steel Sheets with Various Gases and Parameter	
<b>S3I308</b>	Finite Element Analysis in ND-YAG Laser Cutting of Carbon Steels Sheet with Various Process Parameters	
<b>S3I309</b>	Experimental Investigation and Optimization of Cutting Parameter in ND-YAG Laser Cutting of copper Foils Through Various Process parameter	
<b>S3I310</b>	Experimental Investigation of Square Drilling Through ND-YAG Laser of Titanium Steel Sheets with Various Parameter	
<b>S3I311</b>	Experimental Investigation of Square Drilling Through ND-YAG Laser of High Carbon Steel Sheets With Various Parameter	
<b>S3I312</b>	Experimental Investigation of Laser Surface Hardening of High Carbon Steel	
<b>S3I313</b>	Experimental Investigation of ND-YAG Laser Profile Cutting of Titanium Steel Sheets With Various Gases	
<b>S3I314</b>	Experimental Investigation of ND-YAG Laser Profile Cutting of Titanium Steel Sheets With Various Gases and various parameter	
<b>LASER WELDING</b>		
<b>S3I350</b>	Evaluation of ND:YAG LASER WELDING Efficiencies for 302 Stainless steel	
<b>S3I351</b>	Evaluation of ND:YAG LASER WELDING Efficiencies for 310 Stainless steel	
<b>S3I352</b>	Evaluation of ND:YAG LASER WELDING Efficiencies for 316 Stainless steel	
<b>S3I353</b>	Evaluation of ND:YAG LASER WELDING Efficiencies for 409 Stainless steel	
<b>S3I354</b>	Evaluation of ND:YAG LASER WELDING Efficiencies for 410 Stainless steel	
<b>S3I355</b>	Evaluation of ND:YAG LASER WELDING Efficiencies for 430 Stainless steel	
<b>S3I356</b>	Evaluation of ND:YAG LASER WELDING Efficiencies for 304Stainless steel	

<b>S3I357</b>	An Investigation of Dissimilar Welding Joint of AISI 304L Stainless Steel with Pure Copper by Nd:YAG Pulse Laser: Optimization of Tensile Strength	
<b>S3I358</b>	LASER WELDING of dissimilar Material	
<b>AJM PROJECTS</b>		
<b>S3I360</b>	Experimental Study on Surface Roughness abrasive water jet cutting on AL6063	

<b>CRYO TREATED MACHINING PROCESS</b>		
<b>S3I380</b>	Evaluation of Machinability of D3 Steel and Cryo-Treated PCBN with untreated Carbide inserts using Taguchi Technique	
<b>S3I381</b>	Evaluation of Machinability of H13 Steel and Cryo-Treated CBN with Untreated Carbide Inserts using Taguchi Technique	
<b>S3I382</b>	Evaluation of Machinability of Tool Steel and Cryo-Treated Cermets with Untreated cermet Inserts Using Taguchi Technique	