



# *AEROSTAR SOLUTIONS*

*AERONAUTICAL, MECHANICAL AND AUTOMOBILE PROJECTS  
FOR  
FINAL YEAR STUDENTS*

Aerostar solutions is one of the pioneer project centre which has been started by industrial professionals to share their industrial exposure with the engineering students in industrial Design and Analysis

We started our project centre for the students who are seems to suffer in engineering subjects, lack of resources, those who want to concentrate on gate or in their semester subjects and lack of knowledge in advanced technologies.

Our is a public domain service centre to the final year students especially for **Aeronautical, Mechanical, Automobile and Production Engineering** students. The final year project is mirror of a student academic performance. The project reflects the candidate's capability in their field.

## **ABOUT OUR ORGANISATION**

Our organization was started as a student project centre since 2009 by final year students along with industrial research professionals working in USA based research industries. Initially we started this project centre only for Aeronautical Engineering students. Later we expanded to Mechanical, Automobile and Production Engineering field. Now it has grown as industry supporting project centre working in remote cities around India. Not only final year projects us also arranging **Industrial Project, Mini Projects, and Workshops for CFD and FEA, In-plant training** for academic students.

Our project centre branches are in major cities like **Chennai, Pune, Mumbai and Bangalore**. We have trained research analyst and academic professionals working in various research fields.

## **OUR MOTTO**

Among the developing nations our country India has the maximum percentage of students in the overall populations. It's our duty to provide the good academic back ground to these students so these talented student powers will lead our country to a super power in future as per our youth leader "**A.P.J. ABDUL KALAM**".

Our aim is to make out coming Engineering Students has bright, talented and skilled in advanced technologies and educations and also to increase their innovative thinking power. And to help the unemployed engineering people to achieve their esteem level. Learning the books as per University syllabus will not lead a student to successful engineer. Beyond that the analysing, problem solving skill will speaks in his/her career growth. From our side we are helping them to know or aware about the industrial growth in these engineering areas.

## AERO PROJECTS TITLES

### CFD & FEA PROJECTS

- OPTIMIZATION IN MICROAERIAL VEHICLE DESIGN FOR HIGHER PERFORMANCE.
- INTERNAL FLOW ANALYSIS IN A JET ENGINE FOR VARIOUS AOA OF AN AIRCRAFT.
- COMPRESSOR DESIGN OPTIMIZATION FOR A HIGH SPEED JET ENGINE.
- OPTIMIZATION IN WING DESIGN FOR FIGHTER AND PASSENGER AIRCRAFT.
- REDUCTION OF DRAG IN A BUGGY CAR MODEL.
- DESIGN AND OPTIMIZATION OF FLOW FIELD IN HEAT EXCHANGER.
- DESIGN AND ANALYSIS OF DUST COLLECTOR USING CFD.
- ADVANCED DESIGN FOR A TAIL WING FOR BETTER PERFORMANCE.
- DESIGN AND OPTIMIZATION IN AUTOMOTIVE CABIN COOLING.
- REDUCTION OF NOX IN CATALYTIC CONVERTER.
- AIR AND FUEL FLOW INTERACTION IN COMBUSTION CHAMBER FOR VARIOUS INJECTOR LOCATIONS.
- NOZZLE DESIGN OPTIMIZATION FOR TO REDUCE NOISE FOR TURBO JET ENGINE.
- DESIGN AND OPTIMIZATION OF A WING USING SMART MATERIALS.
- COMBUSTION CHAMBER DESIGN STUDY ANALYSIS USING CFD FOR OPERATION CONDITIONS.
- STUDY OF AN AERODYNAMIC BEHAVIOUR OF A CAR FOR VARIOUS DIFFERENT RETRO FITTINGS.
- ESTIMATION OF HEAT TRANSFER PERFORMANCE IN A COMBUSTION CHAMBER.
- THERMAL AND STRUCTURAL ANALYSIS FOR TURBINE ENGINE BLADES AT MAXIMUM TEMPERATURE.
- OPTIMIZATION IN PISTON DESIGN FOR HIGH SPEED PISTON USED IN RECIPROCATING ENGINES.
- OPTIMIZATION IN FUSELAGE DESIGN FOR STRESSES CAUSED DUE TO WING AT VARIOUS LOAD CONDITIONS.
- LANDING GEAR STRESS ANALYSIS DURING ROUGH LANDING.
- STRESS ANALYSIS OVER A COMPRESSOR DUE TO EXTERNAL BIRD HIT.
- VIBRATIONAL ANALYSIS OF A WING DURING CRUISE SPEED.
- STATIC AND DYNAMIC ANALYSIS FOR A TURBO PROPELLER ENGINE AND ITS OPTIMIZATION
- STATIC AND DYNAMIC ANALYSIS FOR A SWEPT BACK, DIHEDRAL WING AND ITS OPTIMIZATION.
- THERMAL AND IMPACT LOAD ANALYSIS OVER AN RE ENTRY VEHICLE.
- FATIGUE ANALYSIS FOR AN AIRCRAFT TURBINE BLADE FOR SEVERE ALTERNATING LOAD CONDITIONS.
- TRANSIENT DYNAMIC ANALYSIS OF COMPOSITE WING STRUCTURES FOR HIGH SPEED IMPACT.
- TRANSIENT DYNAMIC ANALYSIS OF COMPOSITE WING STRUCTURES FOR HIGH SPEED IMPACT.
- THERMO-STRUCTURAL ANALYSIS OF COMPRESSOR CASING IN JET ENGINE AT OPERATING CONDITION.

- NOISE REDUCTION IN COMMERCIAL AIRCRAFTS BY MODELING AND ANALYSIS OF FUSELAGE STRUCTURES.

## **FLUID STRUCTURE INTERACTION PROJECTS**

- FLUTTER ANALYSIS OF AIRCRAFT STRUCTURES TO AVOID VIBRATIONAL FAILURE AT AIRCRAFT MANEUVERING.
- STRUCTURAL ANALYSIS OF AIRCRAFT FRAMES TO REDUCE THE SUDDEN RUPTURE FAILURE OF REPEATED LOADING.
- DESIGN AND ANALYSIS OF MAIN LANDING GEAR STRUCTURE OF A TRANSPORT AIRCRAFT AND FATIGUE LIFE ESTIMATION FOR THE CRITICAL LUG
- HEAT TRANSFER DESIGN OPTIMIZATION FOR OPERATING LOADS USING CFD.
- STRUCTURAL ANALYSIS OF A RE ENTRY CAPSULE DUE TO AERODYNAMIC HEAT THAT PRODUCED DURING ENTRY INTO THE ATMOSPHERIC SPACE.
- STRESS DISTRIBUTION OVER A RE ENTRY VEHICLE DUE TO HYPERSONIC SPEED.
- STRUCTURAL ANALYSIS OVER AN AIRCRAFT DUE TO AERODYNAMIC FORCES.
- STRUCTURAL DEFORMATION OF A COMBUSTION CHAMBER DUE TO HIGH TEMPERATURE COMBUSTION GAS AND INFLUENCE OF BYPASS RAM AIR.
- FLUTTER ANALYSING OVER AN AIRCRAFT WING DURING CRUISE SPEED.
- STRUCTURAL BEHAVIOUR OF AN AIRCRAFT COMPRESSOR BLADE IN HIGH PRESSURE COMPRESSOR SECTION.

## **HYPOTHETICAL PROJECTS**

- LOW COST DIRECTIONAL STABILIZER FOR AN AIRCRAFT INSTEAD OF GYRO.
- ADVANCED SOLAR POWER TRANSMISSION WITHOUT MEDIUM FOR A MICRO AERIAL VEHICLE
- DIRECT TURBINE GAS TEMPERATURE PREDICTION USING ADVANCED THERMOCOUPLE DESIGN.
- AUTOMATION IN LANDING SYSTEM DESIGN FOR A PASSENGER AIRCRAFT TO REDUCE RISK FACTOR DURING LANDING AND TAKEOFF.
- INVISIBLE STEALTH AIRCRAFT WITHOUT CONSIDERING AERODYNAMICS.
- STEALTH AIRCRAFT DESIGN USING ADVANCED COMPOSITE COMPOSITIONS.
- AUTOMATIC CRACK DETECTION AND SELF HEALING IN AN AIRCRAFT STRUCTURES.
- TORQUEMETER DESIGN FOR A TURBO PROP ENGINE USING PIEZO ELECTRIC EFFECT.

## MECHANICAL PROJECTS TITLES

### CFD & FEA PROJECTS

- OPTIMIZATION IN PISTON DESIGN FOR HIGH SPEED ENGINES.
- PRE MANUFACTURING DESIGN ANALYSIS FOR A CRANK SHAFT CONNECTING ROD ASSEMBLY FOR VARIABLE LOAD CASES USING FEA.
- FORCE TRANSMISSION ANALYSIS IN CONNECTING ROD ASSEMBLY FOR HIGHER EFFICIENCY ENGINES.
- OPTIMIZED MUFFLER DESIGN FOR LESS POLLUTION ENGINES FOR HEAVY VEHICLES.
- AUTOMOBILE MUFFLER DESIGN OPTIMIZATION FOR LESS NOISE ENGINES.
- THERMAL DEFORMATIONS OF BOLTS IN BOILER DESIGN FOR VARIOUS LOAD CONDITIONS.
- RELIABILITY PREDICTION OF GEARS IN G-ROTORS PUMPS.
- ADVANCED ANALYSIS IN WHEEL HUB DESIGN FOR HEAVY DUTY VEHICLES.
- VIBRATIONAL ANALYSIS OVER AN ENGINE MOUNT DURING HEAVY DUTY TRANSPORT.
- TRANSIENT THERMAL AND STATIC STRUCTURAL ANALYSIS IN VARIOUS FIN DESIGNS
- FATIGUE FACTOR EVALUATION FOR A CONNECTING ROD USING ANSYS WB.
- FATIGUE RELIABILITY ANALYSIS OVER A CRANK SHAFT FOR AN ALTERNATIVE LOADS.
- PARAMETRIC DESIGN ANALYSIS FOR A CONNECTING ROD USING ANSYS APDL.
- ESTIMATION OF HEAT TRANSFER PERFORMANCE IN A COMBUSTION CHAMBER.
- DESIGN AND OPTIMIZATION OF TURN DISH APPARATUS.
- REDUCTION OF DRAG IN BUGGY CAR MODEL.
- DESIGN AND OPTIMIZATION OF FLOW FIELD IN MUFFLER.
- ADVANCED FIN DESIGN FOR HIGH SPEED ENGINES.
- ADVANCED WIND MILL TOWER DESIGN FOR ENVIRONMENTAL LOADS AT VARIOUS CONDITIONS.
- REDUCTION OF NOX IN CATALYTIC CONVERTOR USING CFD.
- AUTOMOTIVE CABIN DESIGN FOR EFFECTIVE COOLING USING CFD.
- DESIGN AND OPTIMIZATION OF CYCLON SEPARATOR.
- AERODYNAMIC DRAG ANALYSIS OVER A SPORTS VEHICLE DUE TO GUST LOADS.
- COLD FLOW ANALYSIS IN ENGINE CYLINDERS.
- INCREASING THE ENGINE CYLINDER LIFE BY A THERMAL OPTIMIZATION TOOL.
- IMPROVING OF PASSENGER THERMAL COMFORT IN AUTOMOTIVE CABIN COOLING
- OPTIMIZATION OF AUTOMOTIVE HEAD (OR) TAIL LIGHT FOG LAMP HEAT DISSIPATION
- OPTIMIZATION OF FLOW FIELD IN AN FUEL TANK OF AN AUTOMOBILE
- INCREASING THE COOLING EFFICIENCY OF AN BRAKE DISK OF A SEDAN
- REDUCTION OF CAVITATION IN A CENTRIFUGAL PUMP USING CFD
- OPTIMIZATION OF FLOW FIELD IN AN FLUIDIZED BED COMBUSTION CHAMBER

- INCREASING MIXING EFFICIENCY OF A MIXING VESSEL
- REDUCTION NOX EMISSION IN AN CYCLONE FURNACE
- FAILURE ANALYSIS OF PRESSURE VESSEL DESIGN AT HIGH OPERATING LOADING CONDITIONS AS PER ASME STANDARDS.
- THERMO MECHANICAL ANALYSIS OF PRESSURE VESSEL DUE TO HIGH TEMPERATURE DISTRIBUTION AT SKIRT JUNCTIONS.
- DESIGN AND FATIGUE VALIDATION OF UNREINFORCED BELLOWS FOR AXIAL AND TEMPERATURE OPERATING LOADS.
- VIBRATIONAL RESPONSE ANALYSIS OF ENGINE SUPPORT BRACKET TO IDENTIFY THE RESONANCE CONDITIONS.
- SEISMIC ANALYSIS OF MOTOR PUMP SUPPORT FRAME KEPT AT FLOOR LEVEL
- HEAT TRANSFER ANALYSIS OF AFTER TREATMENT SYSTEM OF FOUR STROKE PISTON ENGINE.
- STRUCTURE OPTIMIZATION OF SKID STEEL STRUCTURE FOR VARIOUS LOADING CONDITIONS CONSIDERING UNCERTAINTIES.

## HYPOTHETICAL PROJECTS

- SYNTHESIS AND CONSOLIDATION OF NANO – CRYSTALLINE MATERIALS.
- CONTROLLING THE SHELL CRACK REJECTION IN SHELL MOLDING PROCESS.
- SOLAR POWER TRANSMISSION WITHOUT MEDIUM.

Not only these listed projects we also provide various type of projects in Aeronautical and Mechanical Engineering branch. We are providing free consulting for final year projects, mini projects and design projects. The projects are offered at reasonable price. The only thing the students should do.

**JUST CONTACT US!!!**

## **CONTACT DETAILS**

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## ***TECHNICAL PROFESSIONALS***

### ***1. PRABAKARAN***

FEA TECH SPECIALIST

### ***2. J. DHIVAGAR***

FEA ENGINEER

### ***3. K.S.VENKAT***

CFD TECH SPECIALIST

### ***4. HARIHARAN***

CFD ENGINEER

### ***5. K. VIJAY ZINGU***

DESIGN LEAD

## **TERMS AND CONDITIONS:**

1. ONCE THE PROJECT AS BEEN CONFIRMED IT CAN'T BE CHANGED.
2. BECAUSE EVERY PROJECT IS KEPT UNDER PRIVACY.
3. AMOUNT ONCE PAID IS NON-REFUNDABLE.
4. DURATION OF THE PROJECT IS BASED ON THE PROJECT STUDENT SELECTED.