

SHOCKS AND STARS ENGINEERING



SHOCKS & STARS

COMPANY INTRODUCTION

SECP INCORPORATED AEROSPACE RESEARCH & DEVELOPMENT COMPANY (CUI 0212615)

MISSION STATEMENT

We, at Shocks & Stars Engineering, are committed to providing viable, ethically correct, and sustainable engineering solutions for our customers through technical research, development, and training.

OUR CORE VALUES

Systematic | Viable | Ethical | Sustainable

COMPANY HISTORY

Shocks & Stars Engineering (SMC-Private) Ltd. is an aeronautical, astronautical, and mechanical engineering research and development company. The company was instituted on August 3, 2022.

It has come into existence through the amalgamation of several Science Technology Engineering & Mathematics (STEM) research projects that have been undertaken since 2008 under supervision of CEO, Engr. Dr. Ali Sarosh.

Today, the company is primarily focused on the development of aero-mechanical design solutions in aeronautical and astronautical domains, theoretical as well as computational engineering works, and product prototyping. The company also specializes in providing technical training in the field of aeronautics, astronautics and mechanics.



Logo designed by our media partner, Kborn Designs

CURRENT LEGAL STATUS

Shocks & Stars Engineering (SMC Pvt.) Ltd. is currently registered with the Securities and Exchange Commission of Pakistan (SECP) per Corporate Unique Identification (CUI) No. O212615 and the Federal Board of Revenue (FBR) under NTN# 9403725-3.

BOARD OF DIRECTORS

CEO/President :
Engr. Dr. Ali Sarosh

Executive
Vice-President :
Shazina Sarosh



AEROFLUX Research Group

Your home to our aeronautical engineering's new and exciting projects, researches, lectures and much more...



ASTROFLUX Research Group

Welcome aboard to astronomical engineering with space projects, academic lectures, research works and much more...

CONSULTANTS

Legal & Tax Consultant:
Mr. Mansoor Ahmed

CEO Qazi Mansoor Ahmed Associates

Media Consultant:
Mr. Khushbakht Sarosh
Managing Director Kborn Mark

EXECUTIVE SUMMARY

OUR PRODUCTS & SERVICES

We provide products and services for aeronautics, astronautics, and mechanical systems. Our aeronautical services include but are not limited to aerothermal design integration, aerodynamics design study, aerospace propulsion design, and others. Our astronautics services are spacecraft design and prototyping, hypersonic airbreathing, space mission analysis, space situational awareness. Within the ambit of mechanical systems, our services include aero-mechanical integration of electronics systems and aerothermal analysis of airborne electronics systems. We also provide highly specialized training courses in aeronautics, astronautics as well as mechanical domains.

OUR COMPETITIVE ADVANTAGE

We are pioneers in founding an aeronautics and astronautics research company in Pakistan.

We consider our ability to seamlessly collaborate with international as well as local companies horizontally and vertically, as our competitive advantage.

We intend to become industry leaders through a continually growing network of local and international partners in the technological field.

We consider our competitors as our opportunities for growth in the aerospace and mechanical domains.

We are and will continue to work with our collaborators in developing aerospace technologies in Pakistan. This, we believe, is just the beginning of building an ecosystem for fostering growth of aeronautical and astronautical industry in Pakistan

ENGINEERING DESIGN SERVICES

ACADEMIA & INDUSTRIAL RESEARCH

- MANAGEMENT & CONDUCT OF ACADEMIA AND INDUSTRIAL RESEARCH PROJECTS

THEORETICAL DESIGNS

- THEORETICAL DESIGN OF AERONAUTICAL, ASTRONAUTICAL, AND MECHANICAL SYSTEMS

HIGH-FIDELITY SIMULATIONS

- SIMULATIONS & AEROTHERMODYNAMIC ANALYSIS OF AERO-MECHANICAL AND AERO-ELECTRONICS SYSTEM

PROFESSIONAL DESIGN REPORTS

- PREPARATION OF CONCEPTUAL AND PRELIMINARY DESIGN REPORTS

EXPERIMENTAL TESTING

- EXPERIMENTAL TESTING OF AERO-MECHANICAL AND AEROTHERMAL SYSTEMS

DESIGN CONSULTANCY

- DESIGN CONSULTANCY FOR FLIGHT VEHICLE DESIGN
- DESIGN CONSULTANCY FOR POWERPLANT SYSTEM
- DESIGN CONSULTANCY FOR GASTURBINE ENGINES
- DESIGN CONSULTANCY FOR ROCKET PROPULSION SYSTEMS

EDUCATION AND TRAINING SERVICES

We offer short & long duration training courses on:

- Space Mission Analysis & Design
- Satellite System Design
- Hypersonic Vehicle Design
- Astrodynamics
- Aerospace Propulsion Design
- Powerplant Design
- Aerothermal Design Analysis
- Turbomachinery Design
- Computational Intelligence



Resource Person:
Prof. Dr. Ali Sarosh
CEO & CTO Shocks & Stars



TRAINING COORDINATOR

Mushabbar Husnain Noor

Shocks & Stars Engineering

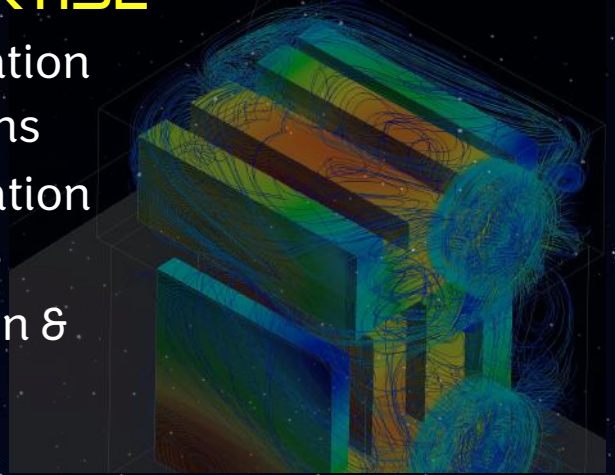
Email : services@shocksnstars.com

Cell : +92-319-6555170

TECHNICAL EXPERTISE

AERONAUTICAL EXPERTISE

- Aerothermal Design Integration
- Aerodynamics Computations
- Airborne Electronics Integration Design & Analysis
- Aerospace propulsion Design & Simulation
- Flight Vehicle Design
- Professional Training Courses



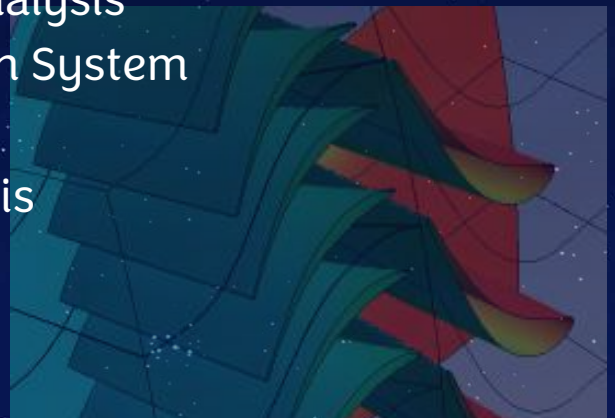
ASTRONAUTICAL EXPERTISE

- Satellite Design and Prototyping
- Launch & Ballistic System Design
- Hypersonic Reusable Vehicle Design
- Rocket Propulsion Design
- Hypersonic Airbreathing Propulsion Design
- Space Mission Analysis and Design
- Reentry Vehicle Design



MECHANICAL & PROPULSION

- Aero-mechanical Integration & Design
- Heat Exchanger Design & Analysis
- Mechanical Stage Separation System Design
- Powerplant Design & Analysis
- Gas Turbine Engine Design
- Steam Turbine Design
- Turbomachinery Design



PROJECT LEVELS & WORK PACKAGES

PROJECT LEVELS

Foundation Level → Technical Feasibility Study Project

Concept Level → Concept Design and Analysis Project

Design Level → Detailed Design and Simulations Project

Article-Level → Prototyping and Concept Demonstrator Project

WORK PACKAGES

SOLO PACKAGE

Customers can choose a standalone project Level from the Project-Levels list above.

SALVO-1 PACKAGE

Customers can combine projects of Foundational & Concept Levels and avail of a discount of 10% on project invoice.

SALVO-2 PACKAGE

Combined Concept Level & Design Level with a discount of 10%

ASCENT PACKAGE

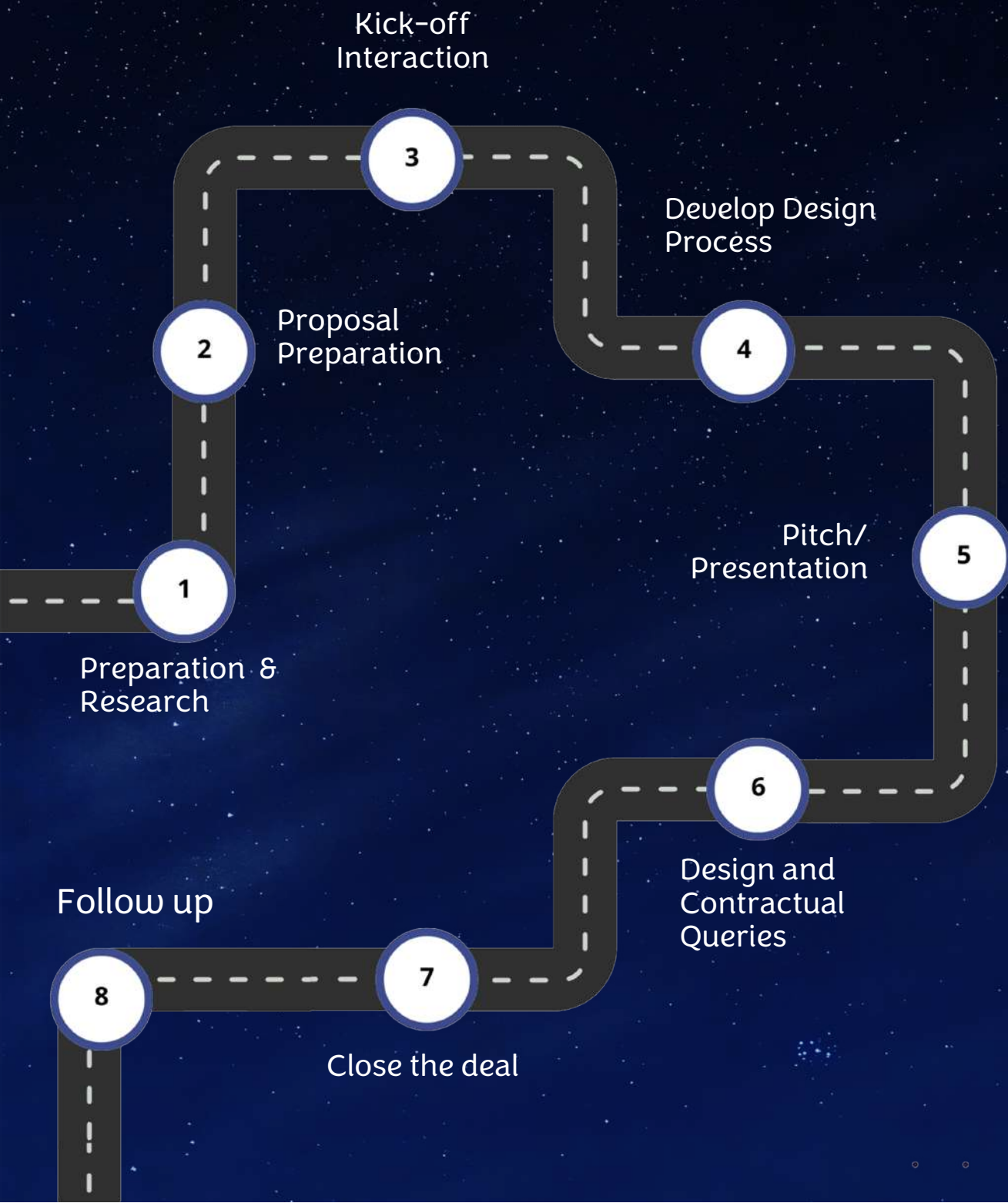
Comprehensive Design Package combining Foundational, Concept, and Design Levels with a discount of 15%

FIRE-N-FORGET PACKAGE

Customers can combine all four project levels i.e., from the Foundational Level till the Completion of the First Article of the concept demonstrator. The Fire-n-Forget package comes with an 18% discount on the overall cost of the project.

CUSTOMER SERVICES PROCESS

- Customers are welcome to pick their desired project level and combine it with work packages to create their own customized project.
- The invoice cost of each project is based on the unit design package (UDP). Each project package will be charged per the number of UDPs required for the work.



MAJOR RESEARCH PROJECTS

- 2022-2024: Design & Optimization of a Rocket-scrumjet Integrated System for Application on Hypersonic Space Transportation Systems.
- 2021-2023: Concept & Mission Design of Small Space Tug for Debris Remediation in Low-Earth-Orbit (LEO).
- 2022-2023: Aerothermal Design Analysis of Avionics in Conditioned Bays of Wing-fuselage Blended Section.
- 2021-2023: Aero-thermal Analysis of Unconditioned Airborne Electronics Communication System LRU Mounted in Dorsal Area.
- 2020-2022: Aero-thermal Analysis of Airborne Electronics LRU Mounted in Conditioned Aircraft Cabin.
- 2019-2020: Design & Prototyping of Stage-separation Mechanism or Sounding Rocket in Near Earth Orbit.
- 2019-2020: Design & Prototyping of Reentry Recovery Mechanism for a Nanosatellite in Near Earth Orbit.
- 2018-2019: Design Refinement of a Highly-integrated SOV with Rocket-ramjet Combined Cycle Propulsion System.
- 2017-2018: Design & Development of a Robotic Manipulator for Space Debris Remediation in Low-Earth-Orbit (LEO).
- 2016-2017: Design and Development of a User-friendly S-TRAP Program for Near-real-time Space Situational Awareness of Earth Orbits.
- 2014-2015: Design Optimization of Structural Sub-system (STS) of PNSS-1 Students Satellite System.
- 2014-2015: Detail Design and Optimization of Detachable Photo-voltaic Power Generation for PNSS Program.
- 2013-2015: Design & Structural Optimization of an Earth Observation of Cube-SAT for PNSS-1 Students Satellite.





CONTACT US

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