

# First Laureate Research & Development



◆ **Project title:** Design and Manufacturing of Helicopter Composite Main Rotor Blade

◆ **Representative:** Sayed Ali Mirsaeidi (M.Sc.)

## Abstract:

Helicopter main rotor blades are the most important rotary parts which are designed and manufactured from metallic material. This project presents the development and manufacturing of composite rotor blades replacing existing technology.

Composite blades have the following advantages over the normal metallic types:

Composite blades have a service life several folds more than the metallic blades, have high resistance against corrosion, Limited number of assembly components, Low production cost, Enhanced safety against damage during flight and Maintenance ability in the operation field.

The project has achieved its goals by obtaining the knowledge of design and manufacturing based on accurate fundamental aeronautical standards, capability of expanding this knowledge to enter the helicopter design and manufacturing arena and the possibility of joining high-tech aeronautical production market due to the valuable experience acquired during this project.

Based on the final plan presented in the detailed design, necessary activities for manufacturing prototypes were undertaken and the necessary correction iteration to achieve acceptable result were performed. Tools, jigs, fixtures and equipments required for manufacturing and final assembly were also designed.

After manufacturing a few composite blades for performing design and certification tests, ground and flight tests were done successfully on a specific helicopter using the final set of composite blade and associated certificate was obtained.

