

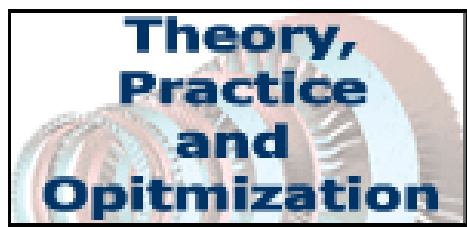


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Educational Programs

"Axial Turbine Flow Path Design and Optimization" Training Course



SoftInWay, Inc., the developer of software products for turbine design, including AxSTREAM™, the powerful software suite that encompasses the complete engineering process of gas/steam axial turbine flow path, is pleased to invite engineers to a new education course: "Axial Turbine Flow Path Design and Optimization". The session will be held November 9-11, Burlington, MA.

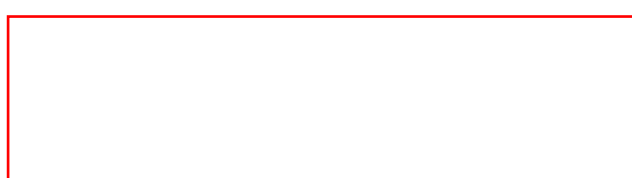
This practice- and design-oriented course is based on over 400 years of experience in turbomachinery design and engineering by SoftInWay's team. Spanning a concepts-to-details process of axial turbine design/retrofitting, the course will enrich engineers with application-oriented guidelines for new / existing turbine flow path designs along with design techniques for the entire flow path and its optimization, including turbine flow path CFD analysis.

For registration and details, please [click here](#).

SoftInWay through the Prizm of Events

Follow-up of the 33rd Turbomachinery Symposium, Houston, TX

Thank you to all organizers, participants and attendees for a SoftInWay's success at the 33rd Turbomachinery Symposium in Houston!



[Click here](#) to get more info on this symposium.

Customers from throughout the Americas visited us including end users from the chemical, petro-chem, and utility industries as well as the vast number of turbine machinery manufacturers in attendance. Great interest to AxSTREAM took a form of multiple agreements for trials and implementations that was a mere fact of its establishment as a unique tool in the scope of industry valuable design and optimization solvers.

[More>>](#)

Openings in SoftInWay

We currently invite you to explore the vacancies that the links below are leading to:

- [CAE Software Developer](#)
- [Project Manager, Engineering Consulting](#)
- [Sales Engineer/Project Manager](#)

Join a strategically focused and highly motivated team involved in Scientific, Mechanical Engineering, Design Consulting and Software Development. You will have an opportunity to work on multiple projects in a very flexible, friendly and challenging environment.

Multidisciplinary Optimization in AxSTREAM

AxSTREAM™ Capabilities in Multidisciplinary Optimization

As the industry throws down new challenges for turbomachinery designers, novel technologies and methodologies are increasingly in demand. Multidisciplinary Design Optimization (MDO) is one of such methodologies purposed for the design of complex engineering systems and subsystems that coherently exploits the synergism of mutually interacting phenomena.

AxSTREAM™ - a professional tool for axial turbines rapid design and optimization - is completely developed on MDO principles but versus prevalent high-fidelity solvers it sufficiently cuts design time and path to market providing practice-valuable results.

[More of MDO specifics in AxSTREAM>>](#)

AxSTREAM Online Presentation

An opportunity to view AxSTREAM™ capabilities in Turbine Design at a glance!

This presentation gives an overview of AxSTREAM™ software suite capabilities in axial turbines conceptual design and optimization. It features a viewer-oriented approach providing a spectrum of unique AxSTREAM™ design and optimization functions from concept to 3D model including the program's theoretical basics that allow for rapid turbomachinery prototype designs.

[View >>](#)

Welcome to our Science Club!

We will be glad to publicize your papers in mechanical engineering in our Science Club. Please submit your articles to lm@softinway.com

Here you will find an array of articles authored by our scientists and colleagues from academia and dedicated to various aspects of turbomachinery research, design, simulation and modernization, heat transfer, mechanical engineering etc.



[See articles >>](#)

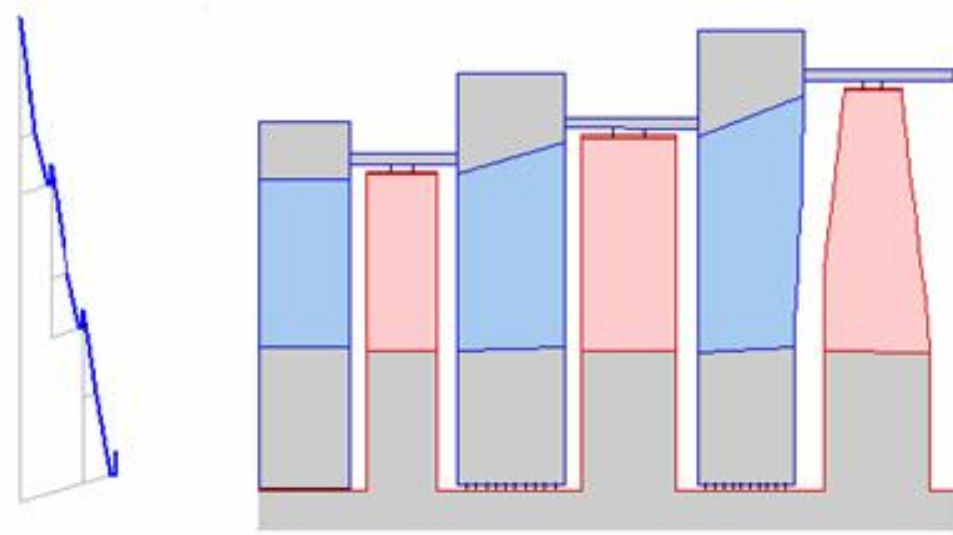
Turbomachinery design with AxSTREAM

AxSTREAM CAPABILITIES IN MULTIDISCIPLINARY OPTIMIZATION

Generally, MDO requires development of non-trivial software for data exchange arrangement between optimization module and solvers, and development of the custom meshing tools. All these are usually realized in the high-fidelity 3D solvers that are essentially time-consumable.

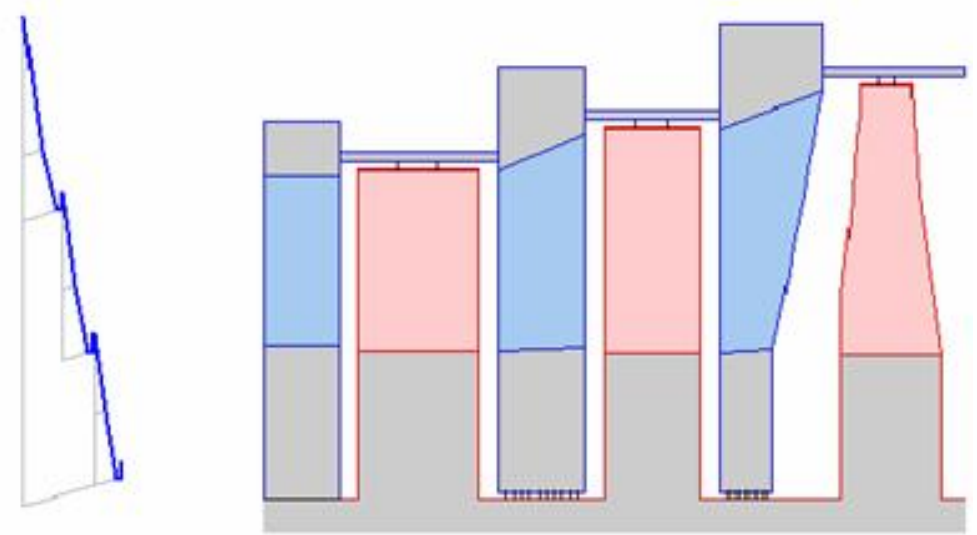
In real design practice, MDO principles aren't bounded by 3D modeling and capable to work with reduced aerodynamic and other types of models.

AxSTREAM is a striking example of such an object- and designer-oriented software that completely implements MDO principles with low-fidelity and formal models providing, at the same time, reliable and practice-valuable results.



Flow path and hs-diagram of initial turbine design

Eff=88.5%



Flow path outlines and hs-diagram of optimized turbine.

Eff=90%; gain in efficiency forms 1.5%.

Principally, AxSTREAM capabilities in multidisciplinary optimization applied to axial turbine design comes to the following problems:

1. Determination of optimal chord and blades number in the cascades with respect to minimal relative loss in the cascade under stress and vibration constraints (optimization S1 in the terms of AxSTREAM).
2. Optimization S3, i.e. optimization S1 combined with optimization S2 (optimization of the stage meridional dimensions) on maximum efficiency criterion.
3. Multistage turbine parameters optimization with flexible algorithm (1D/DoE).
4. Stage twist laws optimization with flexible algorithm (2D/DoE).
5. Profiling. Forming the profile on minimum of maximum curvature or minimum of profile loss criterions.

Being an integrated program of axial turbine conceptual design, AXSTREAM has a structure consisted of the project database, propriety optimizer, embedded modules of turbine elements synthesis and analysis. Solution of the analysis and optimization problems in multidisciplinary formulation including aerodynamic, strength and feasibility studies doesn't present any difficulties at each phase of the process.

The code of AxSTREAM can normally combine the interactive formulation of optimization problem and flexible control of the process within the frame of single problem solution and in interaction with other problems as well.

As a whole, such an approach essentially accelerates all phases of the flow path design that precede full 3D analysis of the buckets, and provides with the design optimized for a majority of required parameters. This allows to minimize a quantity of time-consuming 3D computations in CFD and FEA modeling.

All mentioned together with general problems of turbines design and optimization will be covered during ["Axial Turbine Flow Path Design and Optimization" course](#) November 9-11 at SoftInWay's Burlington headquarters.

You are welcome: registration deadline - the 5th of November!

FOLLOW-UP OF THE 33 TURBOMACHINERY SYMPOSIUM, HOUSTON, TX

SoftInWay had a very successful Turbomachinery Symposium exhibition in Houston on September 21-23. We introduced AxSTREAM 1.5 to the American market and had continuous presentations throughout the show hours. We also participated in a number of discussion groups and seminars during the week, and met many industry leaders in the various official and non-official meetings.

AxSTREAM's traits such as multidisciplinary approach, fast operation, diverse applicability, friendly theme and designer interface, and absolutely practice-valuable results avoked systematic interest to the product.

'We presented AxSTREAM over 30 times throughout the three day event. A wave of interest to our product was expected but the results surpassed all our expectations, - Dr. Moroz, SoftInWay's President and CEO, says. 'AxSTREAM confirmed its position in the scope of industry acknowledged engineering software as a fast and reliable tool for new axial turbines design and for the machines that require redesign and retrofiting. This is why Rob (Rob Rouse, VP Sales) had no end of consultant, manufacture and re-builder/ re-rating companies questions of how AxSTREAM make the task of determining the capabilities of an existing machine on a different application, how it scales down the design cycle, and 'what if' analysis of new and improved flow path design is. An unfeigned commitment of all vistors showed that we has developed a worthy tool for turbomachinery community.'

The enthusiasm for the integrated suite of AxSTREAM modules was outstanding and entailed numerous after the show visits to follow-up with machinery manufacturers, consultants and re-builders. In fact, Rob has already visited one of the largest re-builders in the industry the day after the show and has quoted a major installation for AxSTREAM for use within the next few months!

In addition, all visitors were encouraged to attend SoftInWay's "Axial Turbine Flow Path Design and Optimization" course November 9-11 at our Burlington headquarters. You are welcome: registration deadline - the 5th of November! We also fixed a gust of visitors on our site (www.softinway.com) during and after the show.

We rank the Turbomachinery Symposium among other industry events as the meeting of choice for turbomachinery users today. It covers all sectors of the industry and is a showcase for key companies and 'first-team' players. Every year the event attracts more and more participants and attendees. This year the Symposium featured paid attendee registration up 36.7%, international attendance up 42.11% and exhibiting companies up 7.45%.

So, SoftInWay has already made plans to attend the next (#34) Turbomachinery Symposium September 12-15, 2005 in Houston.

Openings in SoftInWay

Welcome to join SoftInWay Incorporate! We invite you to explore the vacancies presented below:

CAE Software Developer

This individual should have experience in development of complex engineering software projects and a strong background in CAE tools. Excellent understanding of FEA and / or CFD methods and issues. It is essential that the individual has a strong desire to learn and explore new technologies and is able to demonstrate good problem solving skills.

Requirements:

- B.Sc., or M.Sc., or Ph.D. in Mechanical Engineering, Applied Math or Physics with respectfully 5+, or 3+ , or 0-1 years of experience in engineering software development (C, C++, FORTRAN);
- Thorough knowledge of FEA and / or CFD methods;
- Hands on experience with at least one of the following tools: ANSYS, MSC.Software, ABAQUS, I-Deas, CATIA, Fluent, or CFX. Experience with SolidWorks and / or Pro/E is a plus.

Project Manager, Engineering Consulting

This individual will be responsible for all-round technical preparation and evaluation of project proposals in FEA-based CFD, Heat Transfer, Stress- Strain areas. Recommending improvements, the project's technical issues coordination including problems' review, sophisticated model description, precise boundary conditions evaluation, and gathering and analysis of other data required for providing further non-stop development process.

Also responsible for building and maintaining development schedules and fulfilling project deliverables on time, from inception to client sign-off. Beyond this, the candidate needs to have very sharp analytical skills, which s/he will use through the project life cycle, including detailed pre-development proposal analysis, projects feasibility estimation, and user requirements analysis.

Requirements:

- Masters Degree or Bachelors in Mechanical Engineering with significant related experience at Power Generation Machinery oriented companies like GE, Pratt & Whitney, Rolls-Royce, Alstom. Computed Science Degree is desirable.
- 5+ years of complex Mechanical Engineering project management, engineering application development, design, and implementation experience.
- Experience in FEA-contained packages' implementation like ANSYS and/or similar toolkits is required.
- Principle knowledge in CFD, Heat Transfer, Stress-Strain, Machine Design is extremely appreciated.
- Must be strongly focused and extremely organized.
- Proven experience in writing specifications, quality assurance, project complexity, labor effort estimation, and risk analysis skills.
- Exceptional oral and written communications skills are essential.
- PMI certification is a plus.

Sales Engineer/Project Manager

The essential job function of this person is business development and sales of engineering/software development consulting services including:

- forecast development to achieve national sales goals,
- developing and implementing a strategic sales plan to achieve national sales goals;
- identify, close and maintain key accounts;
- provide information to marketing to improve products and profitability;
- monitor and assess major competitors' activities and products.

The person will perform sales work inside and outside in support of SoftInWay's engineering services for diverse industries including Aerospace, Power Generation, Automotive, Energy, Petrochemical, Utilities, Gas, etc. He/She will prepare proposals or service contracts for SoftInWay's engineering services with deep understanding of customer requirements and company's team Design and Engineering abilities in FEA-based CFD, Heat Transfer, and Structural applications development. Coordinate and schedule marketing activity. Serve as Project Manager for various projects, both temporary and ongoing.

Requirements:

- Minimum 4 year Degree in Mechanical Engineering or related areas with significant related experience at Power Generation Machinery oriented companies like GE, Pratt & Whitney, Rolls-Royce, Alstom.
- 5 - 8 years experience of surpassing sales quotas in selling consulting services to C-level executives in engineering and scientific.
- Principle knowledge in CFD, Heat Transfer, Stress-Strain, Machine Design, CAD/CAE, and Visualization is appreciated. Knowledge of MS Office and MS Project is a plus.
- Excellent prospecting and presentation skills .
- Must be strongly focused and extremely organized.
- Exceptional oral and written communications skills are essential.

About SoftInWay Corporation

SoftInWay, Inc., located in Burlington, MA, a 5 year old corporation, is a Scientific and Engineering organization that has a broad foundation of experienced turbomachinery development talent that markets engineering services, software products, and education. We provide design simulation solutions that use visualization of data to solve complex engineering problems. Our clients depend on us to fill non-core engineering capabilities/analysis, and provide the engineering software design tools/software to rapidly develop products and modernize/re-rate legacy turbine equipment. We are very efficient, easy to work with, cost effective, and are proud of our 24 hour customer service support. AxSTREAM is our premier solution for your design and analysis process; our technical roots go back over 30 years, we have 9 PhD level engineers and over 100 man-years of knowledge-base in the product. We are bringing this technology to the market as "AxSTREAM" - making it straightforward and rapid for your development team to conceptualize and optimize turbine flow path design.

For more information, visit <http://www.softinway.com> or call 781-685-4942.

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