



NAFEMS

– THE INTERNATIONAL ENGINEERING ANALYSIS COMMUNITY

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Education & Training – Best Practice – Networking– Analysis Community – Voice of CAE

Engineers rely on computer modelling and simulation methods and tools as vital components of the product development process. As these methods develop at an ever-increasing pace, the need for an **independent, international authority** on the use of this technology has never been more apparent.

NAFEMS is the only worldwide independent association dedicated to this technology. Companies from numerous industries and every part of the globe have invested heavily in engineering technologies such as FEA and CFD.

But:

- How do they ensure they get the best return from their investment?
- How do they develop and enhance their capabilities?
- How do they know they are using the technology in the most effective way?

NAFEMS is uniquely placed to help answer these questions.

NAFEMS is a vendor neutral, not-for-profit membership association of more than 900 companies from all over the world. Members range from major corporations such as Boeing through mid-sized organizations such as JCB, to small-scale engineering consultants.

1. PROFESSIONAL DEVELOPMENT

The Changing Role of Analysis

In the past, analysis was strictly the domain of the expert or specialist, often with complete departments in larger companies dedicated to the function. Today low cost computing power and a wide range of analysis tools are readily available to the engineer. Facilities such as CAD geometry transfer, automatic 'meshing', in-built error checking, adaptive refinement and optimization tools, means that products have become much easier to use. This has led to significant amounts of analysis being carried out by engineers throughout the product design cycle and to the rapid uptake of analysis technology by smaller companies. At the same time, companies are wishing to reduce testing and rely, to an ever greater extent, on the results of engineering analysis as the means of performance verification. All of this places a high level of responsibility on the engineer or analyst.

Continuous Professional Development

It is widely recognized, that in order to maintain a skilled workforce and to secure competitive advantage in a rapidly evolving marketplace, that continual investment in training must take

place. Many companies have empowered their employees with a responsibility to obtain suitable in-the-workplace knowledge. The age of lifelong learning is well and truly here.

How Can NAFEMS Help?

One of the central aims of NAFEMS, monitored through it's [Education & Training Working Group](#) , is to examine the educational and training needs for all those involved in engineering analysis and simulation, and to provide information to satisfy their needs.

This can be further divided into two specific aims:

- To identify the educational and training needs of the less experienced analyst, to enable them to produce reliable and accurate numerical predictions, and to take the necessary steps to satisfy these requirements.
- To identify the educational and training requirements of the more experienced analysts, to enable them to extend their area(s) of expertise, and to share their knowledge with the wider community.

NAFEMS provides the information, materials, events and networking opportunities to ensure that engineers are equipped with the knowledge and skills required in today's competitive marketplace. Further information on the benefits of membership, and how to join NAFEMS, can be found in the [membership section](#) of the website at www.nafems.org.

2. MISSION STATEMENT

To promote the safe and reliable use of finite element and related technology

Since its inception in 1983, NAFEMS has become an independent, not-for-profit, international membership association, owned by its members. The scope of activities spans the original finite element methods, through CFD to Optimization. As new application areas and techniques constantly evolve, NAFEMS becomes involved to create awareness and deliver appropriate education and training.

NAFEMS' Mission:

- To facilitate international industry, academia and government collaboration, that leverages unbiased multi-disciplinary engineering expertise.
- To improve product and process simulation.
- To have a positive impact on quality, profitability, schedules and safety.

3. HISTORY

By the late 1970's and early 1980's, as computing power became more widely available, increasingly industry was starting to solve practical engineering problems using finite element analysis techniques. There was however considerable concern that the accuracy of the methods, and software implementations, required to be verified in order to allow the results to be effectively used. Following extensive lobbying, by industry and academia, the UK Government's Department of Trade and Industry (DTI) set up, and funded, a project within the National Engineering Laboratory (NEL), based in East Kilbride, Scotland, to investigate the issues.

A Special Agency

As a result the *National Agency for Finite Element Methods and Standards*, quickly shortened to the acronym NAFEMS, was founded as a special interest group in 1983 with a specific objective namely: *"To promote the safe and reliable use of finite element and related technology"*.

At the time when this mission statement was written, the engineering community was concerned primarily with the accuracy of stress analysis codes, which were predominantly based on the finite element method. The initial efforts concentrated on developing standard 'Benchmarks' against which codes could be tested. NAFEMS published the results of these Benchmarks for a variety of codes and the software industry quickly responded by adopting these tests as a method of improving and verifying the accuracy of codes. Today most major vendors routinely use the NAFEMS benchmarks as part of their ongoing quality control process. In parallel with these activities the need for good quality education & training materials was also quickly recognized. As a result NAFEMS commissioned a number of textbooks and detailed technical reports in areas where information was felt either to be essential or simply lacking. These texts were, and continue to be, produced for NAFEMS under contract from leading experts in the field. One of the important features of NAFEMS texts, which quickly earned them a high reputation, was that each text underwent a rigorous examination and critique, by the experts sitting on the NAFEMS technical working groups, which commissioned the work. These working groups drew together a potent blend of leading academic researchers, engineering practitioners and software vendors giving a unique insight and perspective into the problem area being scrutinized.

Building a Library

As each new text became available the members of NAFEMS, who in conjunction with the DTI had effectively funded the work, were automatically sent free copies of these texts as a benefit of membership. This built up a large library of reference materials, which continue to be available to new members at preferential rates, or as part of the NAFEMS Membership Joining Pack. The early work of NAFEMS established Awareness Seminars as excellent vehicles for networking and effective sharing of information. A key feature of these seminars was the wide cross-section of industries represented, thus providing outstanding technology transfer opportunities. In time a bi-annual international conference, which is today held in the highest esteem, was also established to expand networking to a global scale. In order to keep engineers abreast of the latest developments in the Analysis World the quarterly magazine BENCHmark was launched by NAFEMS in July 1987.

Independence for NAFEMS

After seven years of seed funding by the UK government, and with the support of its industrial members, the decision was taken to launch NAFEMS Ltd as an independent not-for-profit company, owned by its member's in 1990. The company celebrated its 15th Anniversary in 2005, and has developed both the scope of its technology focus and its membership well beyond the original vision.

4. THE ORGANIZATION TODAY

Today NAFEMS and its members are involved in many different types of engineering simulation covering both products and processes. Membership continues to grow, now exceeding 900 corporate members in over 30 different countries. Regional Steering Groups are active to co-ordinate local activities and interaction with members. Increasingly people view NAFEMS as a one-stop shop for all aspects of information on engineering analysis.

Organizationally NAFEMS nowadays consists of:

- Working Groups
- Regional Steering Groups
- Council of Management (Board of Directors)
- Administration Group

Technical Working Groups

The technical areas of NAFEMS are coordinated by a number of specialist working groups, drawn exclusively from the NAFEMS membership. These working groups identify areas of interest to the analysis community that require new educational materials to be developed. This process is based on a combination of the results of surveys and the personal knowledge of the committee members. An important feature of the NAFEMS publications which are subsequently produced, is that each text undergoes a rigorous examination and critique by the experts sitting on the NAFEMS technical working groups which commissioned the work. These working groups draw together a potent blend of leading academic researchers, engineering practitioners and software vendors giving a unique insight and perspective into the problem area being scrutinized. Increasingly, working groups are becoming multi-national in their make up. From time to time, some groups are formed on a short-term basis to address specific issues with experts drawn from the most appropriate technical areas for the duration of the project. Each of the chairmen of the technical working groups and the regional steering groups provide an overview of priorities and input to the future deliverables plan and the budgeting process for commissioning new documentation.

Analysis Management

The intent of the AMWG is to cover the traditional Quality Assurance aspects of analysis, and to extend the work into the quality of the analysis (and by definition the end product), and the management of the analysis process.

CAD/FE Integration

The CAD-FE Working Group is concerned with improving the design process through the integration of numerical analysis and CAD for use across a full range of disciplines. The group also provides input to ISO TC184/SC4, which is concerned with standards for engineering data representation and exchange including STEP (Standard for Exchange).

Computational Fluid Dynamics

The CFD working group was founded in 1995 with the objective; "to promote the safe and reliable use of CFD and to provide guidance and information for CFD users of all levels." The work of the group is aimed at encouraging and supporting the increasing application of CFD in industry and the expansion of applications.

Computational Structural Mechanics

This newly formed group is a merger between the previous Non-Linear Working Group, and the New Technology Working Group.

Dynamics and Testing

The DTWG aims to bring together analysts and experimentalists to form a common body of understanding in dynamics. It is the belief of this group that the integration of test and analysis is at the core of engineering understanding.

Education and Training

The NAFEMS Education and Training Working Group has four main tasks: To produce educational documents, to oversee the Registered Analyst (RA) scheme, to accredit training courses and to monitor their delivery, and to develop a set of tests for personal accreditation.

Geotechnics

The NAFEMS Geotechnical Committee has been formed in November 2008 with the aim of developing guidelines for the practical application of numerical methods in geotechnical engineering. It is felt that there is a substantial requirement for further guidelines to be developed and published.

Multi-Physics

The Multi-Physics Working Group (MPWG) has been set up with the objective to promote the understanding and competent use of multi-physics analysis (MPA) within industry and the more general engineering community.

Simulation Data Management

Today, many manufacturers are facing tremendous challenges related to the storage and retrieval of simulation data. Product Data Management (PDM) systems are not capable of handling the terabytes of information which are generated as a result of performing these complex simulations.

Stochastics

Extract significantly more business value from your investment in engineering analysis and simulation through the implementation of stochastic applications.

Technical Liaison Group

The technical activities of NAFEMS are directed by the Technical Liaison Group (TLG). The TLG currently consists of the chairmen of the Technical Working Groups.

Regional Steering Groups

NAFEMS' Regional Steering Groups direct the local activities of NAFEMS, and are comprised of leading figures in the fields of industry, academia and software in your region. The steering groups exist in order to ensure that the unique requirements of each region are being considered by the international community, and that NAFEMS are working to meet these requirements. The Regional Steering Groups also have the responsibility of planning an event program which will specifically meet the needs of the analysis community in their region. Currently, steering groups exist in the following areas:

- Denmark, Finland, Norway, Sweden (= Nordic)
- France
- Germany, Austria, Switzerland (= DACH)
- India
- Italy
- North America
- Russia
- Spain and Portugal (= Iberia)
- United Kingdom

Council of Management

The Council is elected by the members and sets the strategic direction for the organization. It provides support to the management of the organization and monitors the development of the organization

Administration Group

The group provides support to the Working & Steering Groups, the production and distribution of NAFEMS Publications, management of all NAFEMS events, membership recruitment, financial management and supports the Council.

5. INTERNATIONAL NAFEMS EVENTS

NAFEMS provides the engineering analysis community with as many as thirty seminars, courses, workshops and open forums throughout the world each year. As the only truly independent organization dedicated to engineering analysis and simulation NAFEMS' events are widely held to encompass the broadest and most accurate view of the community available.

NAFEMS World Congresses

The last biennial NAFEMS World Congress 2009 took place between the 16th and 19th of June 2009 on the island of Crete, Greece. Three days of outstanding presentations, discussion sessions and workshops were held, with over 200 attendees from around the globe.

www.nafems.org/events/congress/2009/

Regional Summits

In the years between the biennial NAFEMS World Congress NAFEMS organizes Regional Summits in the different areas. In 2008 these conferences were held in the Nordic region, in the United Kingdom, and in the United States. The next Regional Summits are now planned for 2010.

Seminars and Conferences

NAFEMS organizes a variety of seminars and conferences on CAE all over the world. An overview can be found at www.nafems.org/events/nafems.

Training Courses

NAFEMS offers several analysis and simulation training courses. Courses are held in frequently in several locations for all interested parties. NAFEMS can also provide 'in-house' courses. Please find an overview on upcoming training courses at www.nafems.org/events/training.

Webinars

Increasingly, NAFEMS is looking to new technology in order to deliver education and training to its members and the analysis community in general. The first NAFEMS webinar took place in January 2007, allowing attendees from across the globe to come together in an online seminar. Technology now gives everyone the opportunity to participate and attend "events" online, without having to leave their desk. Additionally, holding events in this way allows those who did not "attend" to view the webinar on their computer at their leisure, providing a valuable archive for NAFEMS members. Please find an overview on upcoming webinars at www.nafems.org/events/webinars.

Industry Events

A listing of submitted industry events is available on the NAFEMS website. Please find an overview of industry events at www.nafems.org/events/other.

6. NAFEMS e-Learning

In today's world, corporations and employees are re-engineering themselves to keep up with an ever changing economic and market environment. Training has become one of the top issues faced by all organizations. In order to meet these needs and provide additional training opportunities to the NAFEMS community, NAFEMS e-Learning was established in 2009. Our hope is provide a source of information and best practices to those working in the engineering analysis and simulation community.

e-Learning:

- Increases productivity
- Reduces downtime
- Lowers costs
- Resolves issues
- Worldwide access

There is ongoing development of e-Learning courses. So far NAFEMS developed two e-Learning Courses:

- Composites FE Analysis
- Dynamic FE Analysis

FAQs

Are these courses instructor-led live sessions or pre-recorded sessions?

- All NAFEMS e-Learning courses are accredited by NAFEMS and led by leading figures in the worldwide engineering analysis community. All courses will provide live instructor-led sessions to allow attendees an opportunity to interact with the course instructor.

What is the method of delivery for course material?

- The NAFEMS e-Learning courses are entirely web-based. A variety of easy-to-use web-based tools will be used, including: WebEx Meeting Center, discussion boards and collaborative e-rooms.
- Each topic in the class is treated as a building block. The course instructor will provide interactive project and will involve the attendees in the process via Q&A, email, the course discussion board and collaborative e-rooms.

What is the teacher to attendee ratio?

- The maximum classroom size for an e-Learning course is 25 attendees. We do this to ensure a more interactive class environment.

Are attendees required to attend every session?

- All sessions will be recorded and available for download to attendees.

Do any of the courses require particular software programs?

- No. All courses are completely code independent. No software is required. A broadband connection and access to phone/microphone (VoIP access is available) is recommended.

What should attendees expect to receive as an NAFEMS e-Learning registrant?

- Full notes are provided for the attendees, together with personal passwords for e-learning backup material, bulletin board access, etc.

For more information please email to e-learning@nafems.org and have a look at www.nafems.org/e-learning

7. LITERATURE / PUBLICATIONS

All NAFEMS publications have been produced as a result of contracts placed by NAFEMS on behalf of the members. NAFEMS members automatically receive one copy of all new documents free of charge as a part of the benefit of NAFEMS membership. It is, however, our policy to make these documents available to the wider analysis community, with pricing to non-members which reflects the market value of the publications. The range of publication starts from “How to” and “Why do” guides, “Benchmarks”, “Primers”, “Introductory Texts”, “Journals”, “Workbooks of Examples”, to “Standard Academic Style Textbooks”.

Textbooks

Analysts from around the world rely on NAFEMS textbooks in their day to day routine. Completely code-independent and focusing on analysis basics and state of the art technologies, NAFEMS textbooks form the backbone of the publication library of many proficient analysts.

Management Guides

Covering the management of design and analysis, through to the relationship between FEA/CFD and ISO9001 regulations, NAFEMS management guides are essential to ensure analysis processes are as effective as possible.

Why do / How to Series

The successful Why Do / How To series of publications is designed to guide both new and experienced analysts. The booklets are written to introduce various analysis methodologies to engineers and engineering managers, in a straightforward and informative manner.

Benchmarks & Reports

NAFEMS provides the only independent, peer reviewed benchmarks and reports for FEA and CFD. Reports and case studies on all areas of analysis technology are produced on a regular basis.

Publish your Work

As a part of the International Engineering Analysis Community, you have the opportunity to have your work published by NAFEMS in a number of ways:

- [Benchmark Magazine](#)
- [International Journal of CFD Case Studies](#)
- [NAFEMS Publications](#)
- [Online Articles](#)

NAFEMS encourages submission of work for each of these areas, and endeavors to provide an opportunity for all members of the community to publish their work.



8. ONLINE ANALYSIS RESOURCES

The screenshot shows the NAFEMS website interface. At the top, there is a navigation menu with links like 'home', 'about', 'membership', 'events', 'e-learning', 'NWC09', 'publications', 'resources', 'technical groups', 'regional groups', 'media & news', 'contact us', 'projects', and 'The CAE Guy'. A search bar is located on the right. The main banner features the text 'e-LEARNING' in large letters, with the NAFEMS logo below it. A person is shown working on a laptop. Below the banner, there are several news and event items:

- Welcome to the NAFEMS Website:** A message about the website's purpose and NAFEMS as an independent not-for-profit body.
- News:**
 - AI Frew, Ret. Aerospace Executive Interview - Increased Risks to Programs and Why Collaboration is Key to Success:** 27th Jul 2009.
 - Survey on Simulation Data Management Launched by NAFEMS:** 24th Jul 2009.
 - Simmetrix Extends Multi-Threaded and Distributed Parallel Mesh Generation Capabilities:** 23rd Jul 2009.
- NAFEMS Events:**
 - Composites FE Analysis:** 25th Aug 2009, Course, e-Learning, Online.
 - Practical Stress Analysis & Finite Element Methods:** 15th Sep 2009, Course, Midlands, UK.
 - Dynamics Testing & Analysis Workshop:** 16th Sep 2009, Workshop, Bristol, UK.
- Industry Events:**
 - The International Conference on Structural Mechanics in Reactor Technology (SMIRT 20):** 9th Aug 2009, Conference, Espoo (Helsinki), Finland.
 - Reliability Tools Webinar: 13th August:** 13th Aug 2009, Seminar, Stockport, Manchester, UK.
 - modeFRONTIER Workshop:** 25th Aug 2009, Workshop, Coventry, UK.
- Popular Publications:** 'What is V&V' (Verification and Validation (V&V) is a major aspect of the work of the...).
- Next Free Webinar:** 'Regional Groups'.
- Question of the week:** 'Do you make use of online discussion forums?'.

NAFEMS offers several outstanding online resources:

A-Z of Analysis Terms

One of the difficulties with any specialist field is dealing with the vast array of terminology. Whilst you may be familiar with many terms, what happens when you come across a new term for the first time? To help solve that problem NAFEMS built an A-Z of analysis related terms with simple definitions.

www.nafems.org/resources/analysis_terms

The Knowledge Base

The Knowledge Base series of articles has been running in BENCHmark magazine since October 2003. Each article gives a useful insight into some of the basic tools needed for a complete knowledge of FEA, and serves as an important reminder of the theory behind today's complex analyses. The series is now available online to the analysis community in general, and will be updated each quarter with new articles to ensure you don't forget the basics.

www.nafems.org/resources/knowledgebase

CFD Jargon Explained

"If language be not accorded priority over subject, then the subject can have no reliable priority at all" (L.J.K. Setright)

Computational Fluid Dynamics is a very powerful engineering tool, enabling a wide variety of flow situations to be simulated, reducing the amount of testing required, increasing understanding and accelerating development. It can be applied to a very wide range of applications and this breadth of application means that personnel from a wide range of

different backgrounds come into contact with CFD; be they managers, engineers (mechanical, chemical, biomedical, civil or even electronic) or people involved in sales or marketing. The use of CFD jargon can therefore be particularly frustrating. The aim of this downloadable and searchable PDF document is to provide short and hopefully clear definitions for the more commonly used CFD terms and acronyms. In many cases this will provide sufficient understanding. Where more detail or depth is required, the reader is referred to the textbooks listed in the bibliography and the increasing range of CFD and application specific textbooks now available. This is not a fully comprehensive list of all terms that are used in the context of CFD. Updates are planned to cover additional terms as required. Comments and suggestions from users will be welcomed as will suggestions for future publications.

www.nafems.org/resources/CFDJargon

CFD Analysis - Guidance for Good Practice

This guide highlights the main issues that should be addressed throughout the course of a CFD analysis.

www.nafems.org/resources/cfd_guidance

General Guidelines for Good Convergence in Computational Fluid Dynamics

These guidelines are aimed at a relatively inexperienced CFD user, to provide general advice on the issues regarding convergence of CFD solutions. It is intended to supplement any code specific issues, for which the vendor's manuals and support services should be the first point of call. There are also a number of specific tips for achieving convergence. Contributions to increase this knowledge base are gratefully received.

www.nafems.org/resources/CFDConvergence

Consultancies

These consultancies have taken the forward-thinking step of becoming members of NAFEMS. In providing this listing, NAFEMS is offering a service to the engineering analysis community. As a strictly independent body we offer no recommendations for any of these organizations or individuals. The responsibility to verify the accuracy of the information provided and the quality of the services offered resides with the user. If you have a specific area or problem you need a consultant for, the best option is to use our advanced search facility to search the database of consultants. If you are a NAFEMS member, you can add your consultancy details to this listing from the member area of the website.

www.nafems.org/resources/consultancies

Software

NAFEMS intends to provide a database of available software covering all aspects of engineering analysis worldwide. Shortly, you will be able to view details of software packages in all fields of analysis grouped under the relevant technology. If you are a NAFEMS Member, you can list your software packages in this section. Simply login using your username and password, and complete the relevant forms. If you are not yet a NAFEMS member, take a look at the benefits membership brings to you and your company.

www.nafems.org/resources/vendors

Register of Advice Experts

NAFEMS members have added their details to the website to offer advice and guidance in their particular field of simulation and analysis. If you have a question or problem which you need advice on, they are happy for you to contact them using the details they have provided. In providing this listing, NAFEMS is offering a service to the engineering analysis community. As a strictly independent body we offer no recommendations for any of these organizations or individuals. The responsibility to verify the accuracy of the information provided and the quality of the services offered resides with the user.

www.nafems.org/resources/experts

9. Registered Analyst Scheme

NAFEMS' Registered Analyst Scheme has arisen out of a need identified in the analysis community to define standards for competence, experience and underpinning knowledge that lead to the award of a formal qualification. It is broad-based and designed to cover numerical analysis of any description used in engineering design, simulation and product verification.



The Scheme is based on the simple concept that the qualification of Registered Analyst (RA) is achieved by an independent assessment of workplace competence, which may be at two levels, either 'Standard' or 'Advanced'. This requires the accumulation of workplace experience in the specification, planning, execution and interpretation of numerical analysis applied to design, simulation or product verification, and adequate performance in executing these functions to a high standard.

Both experienced analysts and the newcomers can participate in the Registered Analyst Scheme. The Scheme has benefits for both employer and employee. It records, verifies and assesses independently an analyst's skills and competence and therefore worth to a company, and demonstrates simultaneously that company's commitment to quality standards.

For the individual, the benefits include: -

- A distinctive qualification
- Increased value to employers
- Enhanced prospects of promotion

For the trainee analyst the structured requirements for training result also in: -

- Enhanced analytical skills
- Increased confidence
- Improved self-motivation

The company also benefits through: -

- Enhanced employee's skills which result in higher productivity, less supervision, reduced risk of error, more innovative solutions, more up-to-date knowledge, retaining competitive edge, and improved staff motivation.
- A formal record of staff competence and training which satisfies the requirements of ISO 9001.
- Evidence of independent assessment of staff competence which results in presentation of high quality staff to market and increased customer confidence.
- Easier recruitment of high calibre staff.
- Reduced risks when employing consultants and sub-contractors whose staff are Registered Analysts

An overview of the scheme, as well as a ZIP file containing the relevant application forms can be downloaded at www.nafems.org/involved/analyst_scheme.

10. ENGINEERING SKILLS MANAGEMENT CONSULTATION

Over several months in 2008-2009, NAFEMS has undertaken a consultation exercise on Engineering Skills Management. The objective of the consultation was to enable NAFEMS to understand more fully the current and desired processes for managing Engineering Simulation skills within industrial organizations that make considerable use of these technologies. The consultation involved two whole day management forums (in the UK and Germany), discussions with NAFEMS regional steering committee members (from France, North America and Scandinavia) as well as numerous individual discussions. A number of participants were also asked to more formally prioritize some of the potential actions that

NAFEMS could undertake. Representatives from major global companies across various industry sectors participated in these forums. The discussions revealed that participants were generally content with the competence of their in-house experienced users and, in many cases, their experienced contractors. However the non specialist users and contractors did not have their competency assessed to the same level, although a few organizations did have some strategies to address this issue. NAFEMS sought further feedback on what skills were required in the area of engineering simulation. A list of skills was generated from these discussions. Virtually all of them were generic skills, i.e. not related to a specific application. These skills could be categorized into the following areas:

- Technology
- Tools
- Process
- People Skills

There is a clear desire from industry to have an international standard set of learning outcomes defined. NAFEMS is regarded as the right type of organization to manage this activity. Also high in the list of priorities is the provision of information on third party courses which deliver the learning outcomes. In practice this will mean some form of accreditation of the courses provided by training providers. A full summary report on the consultation exercise is now available to download at www.nafems.org/projects/esm.

11. PROJECTS

As the only independent international organization dedicated to the engineering analysis community, NAFEMS is always involved in a number of external projects with other organizations in the European Community and beyond. Indeed, NAFEMS co-ordinates and manages international collaboration initiatives throughout the world of simulation, most recently coordinating the EU funded FENet and Autosim projects. NAFEMS members benefit significantly from NAFEMS involvement in this type of project, by having the opportunity to get involved at all stages. As well as being in a position to influence project direction, provide feedback which is truly taken onboard, and benefit from the outcomes and findings of major cross-industry initiatives, NAFEMS members can not only follow and adopt state-of-the-art - they can shape the future of the technology.

Recent projects are:

- [Autosim](#)
- [FE-Net](#)
- [CCOPPS](#)
- [ILTOF](#)
- [NUFRIC](#)
- [GEM](#)
- [SAFESA](#)
- [Forum for Applied Mechanics](#)

Please find more information at www.nafems.org/projects

12. NAFEMS MEMBERSHIP

Engineers rely on computer modelling and simulation methods and tools as vital components of the product development process. As these methods develop at an ever-increasing pace,

the need for an independent, international authority on the use of this technology has never been more apparent. NAFEMS is the only worldwide independent association dedicated to FEA and CFD. Companies from numerous industries and every part of the globe have invested heavily in engineering technologies such as Finite Element Analysis and Computational Fluid Dynamics.

- But how do they ensure they get the best return from their investment?
- How do they develop and enhance their capabilities?
- How do they know they are using the technology in the most effective way?

NAFEMS is uniquely placed to help answer these questions.

At NAFEMS, we recognize that different organizations need different things from their memberships. We have developed a number of membership models which will enable your company to take advantage of the benefits of membership in a package which suits you.

- [Site Membership](#)
- [Academic Membership](#)
- [Small Company Membership](#)
- [Corporate Membership](#)

13. BENEFITS OF MEMBERSHIP

Collaboration

Build new business alliances

Through seminars, conferences, and participation in our respected Working Group structure, NAFEMS provides outstanding opportunities for forging lasting professional contacts throughout the world of analysis.

Become active within the analysis community

NAFEMS is the ultimate forum for the exchange of knowledge and experience. Use this to your advantage.

Be fully aware of the numerous analysis resources available to your organization

The requirements of your organization are unique. NAFEMS can empower you with the knowledge you need to take the correct business-critical decisions on your analysis technology requirements.

Enhance your company's visibility worldwide

NAFEMS is the only organization that brings together the major software developers, manufacturers, consultancies, and academic institutions from throughout the world. Ensure your organization is seen to be a part of this global community.

Innovation

Develop your personal skills with the latest sophisticated analysis techniques

Your skills need to keep pace with the ever-advancing world of analysis technology. NAFEMS is the only organization dedicated to ensuring its members have access to the most advanced and sophisticated methods and thinking in the industry.

Remain at the forefront of worldwide engineering analysis technology

The competitive advantage provided by being at the cutting-edge of analysis technology is immeasurable. NAFEMS keeps you there.

Produce better-engineered products with enhanced customer satisfaction

Customer satisfaction will always be the key. NAFEMS provides you with the opportunity use the latest technology in the most efficient manner, ensuring your customers will always receive the best product currently possible.

Productivity

Maximize the productivity of your design process

Learn about potential pitfalls and pick up time saving techniques.

Minimize costly physical testing

Increase confidence in your company's analysis capabilities.

Quality

Demonstrate commitment to the highest standards

NAFEMS membership reinforces your focus on 'best practices'.

Benchmark your organization's simulation process

Learn first hand about the experiences of other organizations similar to your own.

What do NAFEMS Members receive?

- A copy of all new NAFEMS publications, typically 9 per year.
- Large discounts on all NAFEMS publications.
- New members receive a NAFEMS Joining Pack* which includes numerous NAFEMS publications.
- The quarterly magazine Benchmark, for up to three named individuals.
- Six seminar credits towards any NAFEMS seminars (a one day seminar requires two credits).
- Significant discounts on seminars (if all credits are already used), courses and conferences.
- Access to the member's area of the NAFEMS web site.
- Access to the NAFEMS community of over 900 organizations worldwide, providing excellent networking opportunities.

* Joining Pack

The joining pack contains copies of some of the most respected independent textbooks and reports in the analysis world. The pack itself has a value in excess of the membership fee, and is an essential addition to the library of any engineering analyst. The pack supplied with a 3 year subscription contains 27 publications, whilst the 1 year pack contains 17 publications. When joining, companies can customize their pack, choosing publications from our library of over 120 titles to suit their specific needs.

14. CONCLUSION

If you work with simulation, you should be part of NAFEMS.



www.nafems.org

15. CONTACTS

Please use the guide below to find the most relevant point of contact for your enquiry. You can contact any member of NAFEMS staff via e-mail, using the convention firstname.lastname@nafems.org

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