EXCELLENT TRAINING AND DEVELOPMENT FOR SPECIALISTS AND MANAGERS
Training and development at the highest level
First-class vocational training lays the foundation for a promising career – this is true today more than ever. The pace of innovation is high, the business environment is constantly changing, and globalization is generating increasing competitive pressure from abroad. To successfully cope with all these challenges it is often no longer enough to have completed a normal course of study or a conventional apprenticeship. Lifelong learning is now a must.

Fraunhofer responded to these changes by establishing the Fraunhofer Academy in order to offer specialists and managers in business and industry an excellent range of courses. Here the training and development potential of Fraunhofer-Gesellschaft is concentrated at one center, offering a unique transfer of knowledge from Fraunhofer research to business enterprise. The latest findings from applied research are channeled directly into the teaching content, providing a genuine platform for research and innovation.

Prof. Dr. Hans-Jörg Bullinger
President of the Fraunhofer-Gesellschaft
COURSES AT THE FRAUNHOFER ACADEMY

The Fraunhofer Academy offers specialists and managers excellent training and development based on the research activity of the Fraunhofer institutes in cooperation with selected and prestigious partner universities.

Our training and development activities break down into four segments:

- **Fraunhofer Technology Circle** opening new perspectives for the future
- Part-time courses of study create new career opportunities
- **Certificate programs** open up entry into new areas of work
- **Fraunhofer series of seminars** offer up-to-date, solution-oriented practical knowledge

In this brochure we present examples of current programs from the constantly growing range of courses offered by the Fraunhofer Academy.

<table>
<thead>
<tr>
<th>Fraunhofer Technology Circle</th>
<th>Part-time courses of study</th>
<th>Certificate programs</th>
<th>University credentials</th>
<th>Fraunhofer series of seminars</th>
</tr>
</thead>
<tbody>
<tr>
<td>The exclusive series of seminars for technology decision-makers</td>
<td>Master Environmental Sciences</td>
<td>Fiber-composite technology</td>
<td>Environmental sciences</td>
<td>Knowledge Balance Sheet – Made in Germany</td>
</tr>
<tr>
<td></td>
<td>Executive MBA for Technology Managers</td>
<td>Industrial bonding technology</td>
<td>Lernfabrik advanced Industrial Engineering</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Online Master of Building Physics</td>
<td>Non-destructive testing</td>
<td></td>
<td>Hygrothermal component + room climate simulation</td>
</tr>
<tr>
<td></td>
<td>Master Software Engineering for Embedded Systems</td>
<td>Joining technology in electronics</td>
<td>Technology Management – Chief Innovation Manager</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Diploma in Logistics Management</td>
<td>TeleTrusT Information Security</td>
<td>Technology Management – Complexity Management (currently in the planning stage)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Bachelor of Science Logistics Management</td>
<td>Usability Engineer</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
»Success comes from utilizing a knowledge lead, mastering the rules of technology management and implementing innovations quickly.«
Prof. Dr. Hans-Jörg Bullinger, President of the Fraunhofer-Gesellschaft

Fraunhofer Technology Circle

Managers in companies tend to focus on their own technological disciplines, but developments in seemingly distant sectors of technology can have a significant influence on the markets, products and general competitiveness of a company. New perspectives tend to open up for companies in particular at the interfaces to and between new technologies. For executives faced with the challenge of having to correctly and quickly assess the opportunities and possible applications deriving from new technologies within their company, the Fraunhofer Technology Circle offers a platform for getting to know about current technological trends in condensed form as a member of an exclusive circle.

The exchange of experience and networking with leading technology experts will enable you to correctly assess sectors of technology of relevance for the future and thus take important decisions within your company.

– As a senior executive or manager responsible for taking decisions on technology you will learn what you need to know in the Fraunhofer Technology Circle at the places where new knowledge is created.
– You will not only hear and read about innovation but experience it with all your senses.
– You will be able to assess new trends in the context of your own company and introduce new products to the market before the competition.

WE WILL SHOW YOU THE FUTURE!
This accredited interdisciplinary distance-learning course in environmental sciences is based on the concept of sustainability. In cooperation with the University of Hagen distance-learning institute the Fraunhofer Institute for Environmental, Safety and Energy technology UMSICHT imparts up-to-date, practical and comprehensive environmental knowledge. This knowledge is crucial for the integration of ecological, economic and social aspects of sustainability. The course encourages networked thinking and promotes creativity and innovative capability. Participants who successfully complete the course are qualified to implement sustainable approaches to complex environmental tasks at companies and in society in general and to act as promoters with managerial responsibility and strategic foresight.

As a distance-learning course, infernum strengthens the ability to work independently and acquire knowledge in a structured manner. Manageable learning modules in the form of study letters and Internet-based exercises impart the content of the course. In addition, seminars are held and excursions arranged to strengthen contact between the course participants and the teaching scientists.

Certain course modules are available in English.
Sound, comprehensive management training can only be provided by an MBA course which is rooted in expertise, which imparts knowledge, procedures and tools that have been proven in actual practice and which avoids excessive emphasis on pre-prepared cases and front-of-class teaching.

Prof. Dr. Günther Schuh, Course Director of the Executive MBA for Technology Managers

**Executive MBA for Technology Managers**

As an interdisciplinary course incorporating elements of management, technology and business psychology, this Executive MBA course is tailored to the needs of technically experienced managers and develops the necessary skills for managing innovation on international markets. The master’s program offered by the Fraunhofer Academy will qualify managers who can think entrepreneurially and who have a technical background to meet exciting challenges in their future career. The structure of our program covers the entire range of expertise required by an executive. Course content focuses on the five subject areas of technology management, strategy, corporate processes, finance and leadership/social skills.

Participants on the Executive MBA for Technology Managers course will benefit from the knowledge imparted by distinguished lecturers from RWTH Aachen, Fraunhofer-Gesellschaft and the University of St. Gallen. Designed as 20 self-contained module weeks, the course does not require any preparatory or follow-up work. The knowledge acquired can be immediately applied in day-to-day professional life.
The Online Master of Building Physics develops experts who are able to prevent damage to buildings from the outset. The close cooperation between the Department of Building Physics at Stuttgart University and the Fraunhofer Institute for Building Physics makes this course unique worldwide.

Prof. Dr.-Ing. Schew-Ram Mehra, Course Director Online Master of Building Physics

The internet-based part-time Online Master of Building Physics course is unique in Germany and Europe. Its uniqueness stems from the consistent focus on damage prevention. The sound, practical and comprehensive training provided in building physics opens up employment opportunities with a bright future. Students who successfully complete the course gain positions where they are responsible for high-performance, cost-efficient, user- and environment-friendly structures from planning through to operation. They are able to manage the complex connections and interactions of building physics and not only help to improve the building stock as a whole but also to protect the environment.

The structure of the course is explicitly geared to the needs of personnel already in employment. It comprises 80% online and 20% attendance phases in which the latest findings of research and actual practice are integrated in the carefully prepared teaching content. Participants benefit directly from the proven expertise of the distinguished lecturers from the Fraunhofer Institute for Building Physics IBP and the University of Stuttgart.

Industry and its requirements are changing dramatically. Advances in medical engineering or the automobile industry, for example, which used to be determined by mechanics and electronics, are nowadays generated mainly by software. Embedded systems, such as braking and stability control systems, take the form of complex software solutions, but training in this subject area generally lags behind. Today's engineers often lack the necessary level of training in the development of complex software solutions.

The growing complexity of reliable and powerful software for use in embedded systems creates new challenges for development engineers and managers. Technical methods and tools have advanced in recent years. Engineers of embedded systems therefore need to obtain additional training in software engineering.

The Fraunhofer Institute for Experimental Software Engineering ISE offers a unique part-time Master's course, the majority of which takes the form of distance learning from the Distance and International Studies Center (DISC) at the University of Kaiserslautern. The course is geared to international participants and is therefore conducted entirely in English.

Available in English
Given the growing challenges faced by the logistics sector, high-quality, professional training is becoming more and more important. The Logistics Management Diploma course opens up new career prospects.

Prof. Dr. Wolfgang Stölzle, Professor at the University of St. Gallen, Chair of Logistics Management

Logistics has evolved as a key factor in the functioning of a modern economy. Today, traditional logistics tasks are supplemented by activities involving cross-company coordination and integration of material, goods, information and financial flows, as well as project management. As a result, the demands on logistics experts and managers have grown. Our training course is based on the St. Gallen management approach combined with progressive logistics and supply chain management knowledge. Participants learn how to successfully manage complex chains of activity that add value. In discussion with distinguished experts in the logistics field they expand their repertoire of action with the addition of innovative ideas from research and actual practice.

The Fraunhofer Institute for Material Flow and Logistics IML complements this expertise perfectly with its widely-recognized reputation in intralogistics, transport logistics, supply chain modeling and logistics IT. The Department of Logistics Management at the University of St. Gallen also contributes the knowledge of a leading research institute as regards logistics, supply chain management and transport. The high qualitative requirements for this course are reflected in the ELA certification at the highest Strategic Level.

The German logistics industry is regarded as a world leader, and German logistics expertise is therefore in demand internationally. Indeed, 30% of the entire logistics revenue in the EU is generated by German companies. To ensure that this leading position is maintained, companies need excellently trained specialist staff. These have to be qualified logistics experts with sound management know-how who are able to identify and successfully handle complex issues.

The part-time Logistics Management distance-learning course, which the Fraunhofer Institute for Material Flow and Logistics IML provides in cooperation with the European Distance Learning College Hamburg, offers the ideal training and development opportunity for up-and-coming logistics managers and ambitious new entrants to the profession. The concept behind the distance-learning course was developed by experts from the logistics management, science and research sectors and teaches participants the latest logistics technologies and essential business economics. The modules impart the decisive statutory, organizational, intercultural and linguistic qualifications which make an international career possible. Excellent career opportunities open up for participants who successfully complete the course and who can demonstrate professional experience and expert knowledge.

We regard the transfer of logistics knowledge and expertise on a broad front as a major objective of our institute and of Fraunhofer-Gesellschaft. Students who successfully complete this course systematically transfer technologies, models and concepts which we develop at the institute to companies with lasting effect.

Prof. Dr. Michael ten Hompel, Director of the Fraunhofer Institute for Material Flow and Logistics IML in Dortmund
Course participants who successfully complete our professional-certification programs are able to enter new areas of work. The latest knowledge and skills required in industrial sectors with a promising future are imparted, both in theory and practice. The courses are based on guidelines harmonized Europe-wide by the respective certification bodies and are therefore recognized internationally.

We pursue a holistic approach with our certificate programs. On the basis of each case three complementary training levels (Levels 1-3), you will acquire the necessary skills which you can apply in the specific process chain of interest to you.

Fiber-composite technology
Industrial bonding technology
TeleTrust Information Security Professional
Usability Engineer

EXCELLENT TRAINING IN FIBER-COMPOSITE TECHNOLOGY

The Fraunhofer Institute for Manufacturing Engineering and Applied Materials Research IFAM specializes in application-oriented bonding system solutions for industry. In a four-week attended course, job seekers and people employed in the plastic-processing industry and aerospace can qualify as fiber-composite plastic technicians. On successfully completing the course they will be able to produce, process, repair and assure the quality of fiber composite structures. The theoretical content is augmented by extensive practical exercises.

Fiber-composite technology
Competence Level 1
Independent application of the processes and procedures learnt

Fiber-composite technology
Competence Level 2
Independent preparation, planning, organization and monitoring of the processes and procedures

Fiber-composite technology
Competence Level 3
Management of the entire process chain, taking interdisciplinary requirements into account
Industrial bonding technology

Bonding as an industrial joining technique makes it possible to combine very different materials to form high-performance systems. In important sectors of industry employees are required to have specific training and qualifications in this. The Fraunhofer Institute for Manufacturing Engineering and Applied Materials Research IFAM is Europe’s biggest independent research establishment in the field of industrial bonding technology. It offers various training courses on the subject leading to internationally recognized qualifications. Bonding operatives, specialists and engineers are trained at the Bonding Technology Center, which is an accredited training establishment of the German Welding Society (DVS).

Available in English

CERTIFIED PERSONNEL QUALIFICATION IN THE BONDING TECHNOLOGY CENTER

EXPERT QUALIFICATION IN IT SECURITY

TeleTrust Information Security Professional (TISP)

Individuals who obtain the TISP Certificate demonstrate their in-depth knowledge and skills in the field of IT security. By encouraging them to do so, corporate managers demonstrate the importance they attach to confidential and secure handling of their organization’s data.

Hubert Große-Onnebrink, Project Manager IT Training, Fraunhofer Institute for Secure Information Technology SIT in St. Augustin

The professional training and development we provide is up to date, expert and directly applicable. This is mainly because the knowledge is imparted by the people who generate it.

Prof. Dr. Andreas Groß, Director of the Technology Transfer and Personnel Qualification Department at the Fraunhofer Institute for Manufacturing Engineering and Applied Materials Research IFAM

The Fraunhofer Institute for Secure Information Technology SIT runs preparatory courses to help individuals obtain the TISP Certificate that will mark them out as experts in IT security. The certificate, which was developed under the auspices of TeleTrust Deutschland e.V., is the only standardized qualification in IT security to take into account the particular framework conditions that exist in Germany and Europe.

Those undertaking TeleTrust Information Security Professional (TISP) training will learn about or deepen their existing knowledge of all the important aspects of information security. The course is divided into 18 modules covering six different subject areas: the basics of IT security, network security, cryptography, security management, legal foundations and system security.

The course is aimed at experts who have high-level responsibilities in the fields of information security, IT security and security management for information and communications technology (ICT) who wish to prove their in-depth knowledge in their chosen field. These include information security officers, IT auditors, data protection professionals, heads of IT and telecommunications security, and IT security product managers.

Prerequisites are an appropriate level of knowledge in the fields of information security, IT and/ or telecommunications security and security management, plus at least three years’ practical experience in these professions. Candidates must also have completed a five-day preparatory course.

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Software user expectations have changed in recent years, with a clear move away from complicated technology in favor of easy usability. As a result, many companies now regard user-friendliness as a significant future growth area, and it is one in which there is considerable need for information and training. Against this backdrop, the Fraunhofer FIT offers a Usability Engineer training course, which is currently being certified by an internationally-recognized accreditation body.

The one-week full-time course, which is based on the DA*Tech methodology co-developed by Fraunhofer FIT, teaches usability best practice and uses a fictitious software company to illustrate the subject matter. The program is oriented towards the internationally-recognized usability standards ISO 924111, 924110 and 924210. The practical training covers topics such as analysis of product use contexts, defect assessment and prototype development, as well as user-oriented implementation within a company.

The seminar is aimed at IT specialists, quality assurance experts and designers who already have professional experience in information technology and who are interested in addressing the issue of usability in their day-to-day work.

The job market for usability advisors will go from strength to strength in the future. It is becoming increasingly clear that IT companies are having to place greater emphasis on `simplicity` as a quality hallmark of their products, and it is therefore all the more important to ensure solid training opportunities are available in this field. The Fraunhofer FIT makes a useful contribution here, with its training course for qualification as a certified usability engineer.«

Prof. Dr. Matthias Jarke, Director Fraunhofer Institute for Applied Information Technology FIT in St. Augustin

»I am grateful for the insight I have received into the subject. In particular the variety and breadth of the course content were extremely interesting.«

Klaus Gahlen, Arnsberg Regional Government, Mining and Energy Department, North Rhine-Westphalia

The complexity of global, regional and local environmental problems requires the coordinated deployment of social and technical measures. Training to become an environmental manager will equip students with the necessary knowledge. The courses offered by the Fraunhofer Institute for Environmental, Safety and Energy Technology UMSICHT and the Distance Learning University in Hagen are designed for people with at least two years’ professional experience in an environmental sector. Participants put together their own individual training program from the extremely varied course content on offer. All the modules of the interdisciplinary distance-learning course in environmental sciences can also be completed separately, with a certificate being awarded for each.

Certain course modules are available in English.
Innovative products are the key to the success of your company. Innovation and development departments place special demands on the abilities of management. The Chief Innovation Manager certificate course is designed to provide you with individual answers to the challenges of innovation management.

Prof. Dr. Günther Schuh, Scientific Director of and Speaker on the Chief Innovation Manager Course

The objective of the planned training course in complexity management is to teach managers the key skills they need to manage ever-expanding product ranges and functionalities. Recognized experts from industry and research will present current trends and developments in complexity management.
Knowledge Balance Sheet – Made in Germany

»The knowledge balance sheet is the strategic management tool of the future and enables companies to measure and develop their intellectual capital systematically and effectively.«
Prof. Dr.-Ing. Kai Mertins, Director Corporate Management, Fraunhofer IPK, Berlin

Hygrothermal component and room climate simulation

»Saving energy – and how! In our WUFI® seminars participants learn how moisture-related building damage can be prevented using innovative simulation techniques.«
Dr. Hartwig M. Künzel, Head of the Hygrothermics Department, Fraunhofer Institute for Building Physics IBP in Holzkirchen

Knowledge Balance Sheet – THE STRATEGIC MANAGEMENT TOOL OF THE FUTURE

The training for qualification as a knowledge balance sheet moderator that is offered by the Fraunhofer Institute for Production Systems and Design Technology IPK in cooperation with the Knowledge Balance Sheet Study Group is the first comprehensive training course to impart a standard, recognized approach for the systematic control and communication of soft success factors. Focal points of the three-stage seminar series include the Knowledge Balance Sheet – Made in Germany method and various case studies.

Available in English

REALISTIC CALCULATION OF COUPLED HEAT AND MOISTURE TRANSPORT IN COMPONENTS

The WUFI® simulation method (for calculating transient heat and moisture) developed at the Fraunhofer Institute for Building Physics IBP and validated using data derived from outdoor and laboratory tests allows realistic calculation of the transient hygrothermal behaviour of multi-layer building components exposed to natural climate conditions. WUFI® conforms to international standards and is used worldwide. Fraunhofer IBP offers two-day seminars: a basic seminar for WUFI® beginners and a seminar with advanced content for experts.

Available in English
If you...
• have gained professional experience in a technological environment and are looking for a training course which will open up new career prospects,
• work in the personnel department of a technology-oriented company and are looking for a strong training partner for your specialists and managers,
• would like to have an offer from our training program tailored to the individual requirements of your company,
• are a member of the management board or are responsible for technology decisions and wish to benefit not only from current research expertise but also from the networks of Fraunhofer-Gesellschaft,
... get in touch with our Munich office. We will be pleased to advise you and provide further information on our programs. Extensive information is also available on our website.

www.academy.fraunhofer.de
Our experienced lecturers pass on up-to-date application-oriented Fraunhofer knowledge. What’s more, the Fraunhofer Academy offers access to the networks of Fraunhofer-Gesellschaft. Nowadays such networks are more important than ever for finding cooperation partners and customers.

Dr. Roman Götter, Managing Director of the Fraunhofer Academy

Fraunhofer Academy – more than just training

Fraunhofer-Gesellschaft is the leading application-oriented research organization in Germany. In its 80 research institutes at more than 40 locations around 17,000 employees work on innovative problem solutions for industrial companies in a wide range of technological sectors – from microsystems to bioengineering. As a result, they gain an ongoing insight into the requirements of modern industrial production. This close cooperation means Fraunhofer is familiar with current technical and social challenges and converts research results quickly and specifically into usable innovations. This leading-edge knowledge from actual practice is utilized by the Fraunhofer Academy. Course participants receive more than just conventional training, they benefit from direct technology transfer.