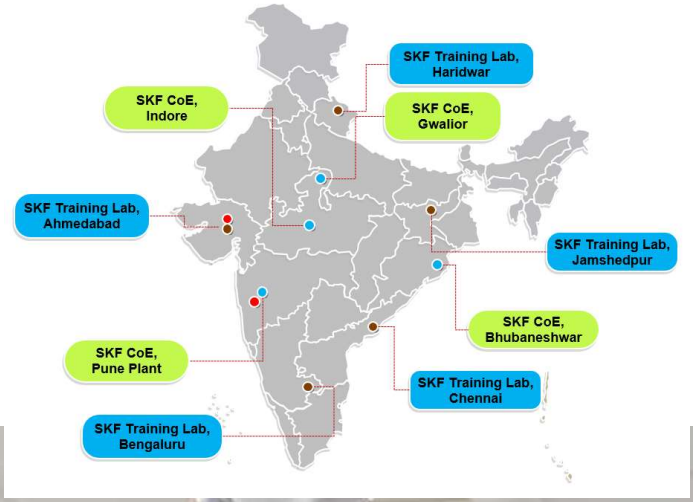
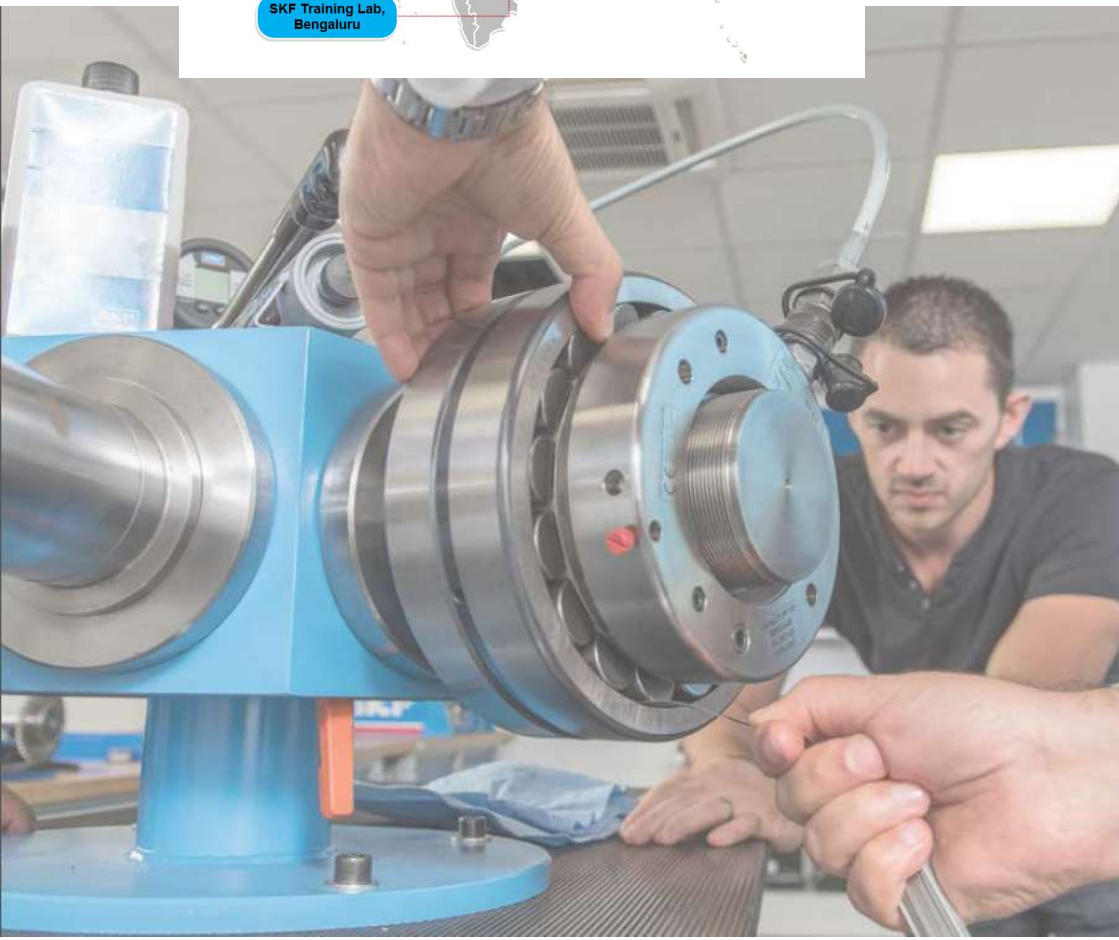
2019 SKF Training Handbook

Embark on a journey of equipment reliability through precision and proactive maintenance practices!

SKF Training Solutions centres in India





Welcome to the world of SKF

Our 2019-20 Training Handbook encompasses a wide range of courses to support you in developing a successful training program for your employees.

Equip your people – Deliver results… To leverage invested capital in machinery and equipment, it is essential that an organization continuously invests in its people to increase efficiency and productivity. **SKF training solutions** offers a comprehensive suite of reliability and maintenance training courses designed to help plants reduce machinery problems and achieve maximum reliability and productivity. Our courses focus on enhancing the efficiency of plant machinery and equipment assets, which are integral to the production process.

The training courses are based on over a century of experience and knowledge in rotating machine reliability that is unmatched in the world. With close working partnerships, established over the years, we have gained a unique insight into the processes and challenges that most major industry faces today.

Our partnerships with global certification councils along with educational institutions in India will empower your staff with knowledge of emerging technologies in the field of engineering, especially concerning rotating equipment management. With exhaustive training sessions that involve 'hands-on' learning experience, your employees will be equipped with SKF knowledge that enables them to become highly skilled technicians adding value to your business. Please refer to this calendar that will give you all the information on this year's courses and do connect with us to deploy them for your teams. We wish you an enjoyable learning experience!

Best Regards
Rajesh Madiwale
Business Head- Services & Solutions
Industrial Markets
SKF India Limited

We can arrange a training program as per your convenience, ranging from asset management to basic maintenance skills, SKF Training Solutions can even develop a customized training for you and your team.

SKF India training courses at a glance

Introduction to SKF Training Solutions

Mechanical maintenance

Electrical maintenance

Condition monitoring technology

Lubrication systems

Original equipment manufacturers

Industry specific

Planning and strategy

Business and manufacturing excellence

Global certification programs

One day programs

Training programs Schedule for April 2019 to March 2020

This session is too good, and definitely helps us to apply basic knowledge to bearings. Good learning experience with highly interactive session.

This is a very good learning session for a new maintenance strategy.

– Hindalco Industries Ltd.

Program was well structured, Instructor very supportive and cordial. Boarding and Loading arrangement was excellent. Had a great learning time. Well done and keep it up. Had a lot to together from the training program and will try to implement with more judiciary.

- Indian Oil Corporation Ltd.

Training was very informative. The session was very good and fruitful to enhancement of our knowledge to improve the efficiency of plant and machinery.

The knowledge level and the depth of the trainer were just extraordinary.

– Times of India

We got lot of values due to this training programme. It is very advantage for our day to day work. This training was very helpful for me to update my knowledge and it useful for my future career.

– Holcim (Lanka) Ltd.

The program is very informative. I liked the content. The program faculty is also very good. This training should be initiated time to time to our people. Learning will be used at my work-place.

– Steel Authority of India Limited

This session is too good and definitely helps us to apply basic knowledge to bearings. Overall session is very good. I meet to all my expectations which I want to from RCA (Root Cause Analysis) Training.

Enjoyed the facility provided by SKF. Also the techniques which are provided by instructor are very useful.

– Corning Technologies India Private Limited

The training was very good and relevant to our job and usable to our day to day maintenance work. A good interactive course with proper management by learning center. BMT 3 Days training with quality knowledge sharing by trainer which is going to help me throughout the life. Thank you.

– Reliance Industries Limited

Training instructor as well as the manuals given were useful. Live examples were shared, animated ideas were shown for the better understanding, and overall the session was Brilliant.

– Talwandi Sabu Power Ltd.

The training proved to be very insightful and enlightening about vibration analysis.

The entire faculty has excellent knowledge on the above subject and with their past field experience on vibration monitoring, they delivered and shared very informative and useful lectures during the subject training.

– Oil and Natural Gas Corporation

It is well balanced course. Gave a clear cut idea of bearing basics. Today knowledge about bearing is more helpful in the industry. Proper way of mounting and dismounting is more important which I got from SKF."

– ThyssenKrupp Industries India Pvt. Ltd.

Benefits of training

- Eliminates re-work and machinery problems to increase reliability and productivity
- Helps prevent catastrophic failures before they happen by identifying the early symptoms
- Minimizes repeated failures by addressing the root causes
- Enhances plant safety
- Improves job satisfaction
- Aids in the recruiting process by making the company more attractive in the eyes of potential employees
- Reduces turnover as employees are less likely to leave if they keep learning new skills and keep up within their industry
- Increases employee productivity by teaching them advanced techniques to complete everyday tasks more efficiently
- Rewards long-time employees who have learned new skills and are ready to take on new challenge
- Reduces the need for employee supervision

SKF Training Solutions

An Overview

Training – A cost effective investment. Delivering the highest quality goods at the best value requires highly skilled employees and optimum machine reliability. Meeting increasingly stringent safety and environment regulations can also affect your operational costs. These factors make maximizing machine reliability and maintenance costs crucial. But training your team on these critical skills as they juggle daily tasks is difficult at best. With SKF training courses, it's never been easier.

Equip your people – Deliver results…

To leverage your invested capital in machinery and equipment it is essential to continuously develop your people as you increase efficiency and productivity. SKF offers a comprehensive suite of reliability and maintenance training courses designed to help plants reduce machinery problems and achieve maximum reliability and productivity. The training covers most aspects of industrial requirements. It includes courses on Mechanical and Electrical Maintenance, Condition monitoring, Planning and Strategy, Business and Manufacturing Excellence etc.

Available on your terms…

SKF Training Solutions can work with you to arrange a training program as per your convenience. From asset management to basic maintenance skills, SKF Training Solutions can develop a customized training for you and your team. We have a full schedule of training courses held at a variety of locations across the country or we can bring our classes to your site.

SKF Training Solutions

SKF India Limited

Knowledge is increased productivity.

Knowledge is power. But at SKF India, knowledge traverses this definition. Knowledge for us is the empowerment of your production and maintenance force to deliver greater machine reliability and increased uptime.

To help you achieve this, is the objective of Training Solutions that offers a series of comprehensive training courses.

Every course from SKF Training Solutions is designed to address a specific machine problem or a maintenance issue and helps you address it with confidence. The courses cover diverse areas ranging from core topics such as bearing fundamentals and lubrication to those involving the use of sophisticated diagnostic instruments such as Micrologs, etc. SKF Training Solutions' training series is the only comprehensive program that offers a 360º perspective on the relevant technical and managerial issues across the hierarchy of an engineering company.

SKF Training Solutions

The SKF Training series is a path -breaking initiative that has been designed with the objective of creating value for the customer's business by contributing to the development of their people resources through in-depth training programs. The Institute offers courses designed to help plants eliminate machinery problems, and maximize reliability and productivity, by utilizing the very latest in precision maintenance techniques.

Residential courses at SKF Training Solutions, Pune

A lot goes into the making of a world-class training facility, which is evident from the care with which the SKF Training Solutions is built. All SKF Training Solutions courses are conducted by professionals with extensive experience in related fields. The Institute is established in an environment that is extremely conducive to learning. Located in the lush green campus of SKF India's Pune plant at Chinchwad, the Institute offers spacious classrooms, latest information display arena and a knowledge centre with state-of-the-art learning facilities. It also houses a 68-bed modern residential facility, a recreation centre and a well-equipped gymnasium to ensure a comfortable stay for the participants.

SKF Training Solutions India

An approved training organization for British Institute of Non-Destructive Testing

THE BRITISH INSTITUTE
OF
NON-DESTRUCTIVE TESTING

SKF TRAINING SOLUTIONS
CHAFEKAR CHOWK, CHINCHWAD, PUNE – 411 033, INDIA

British Institute of Non-Destructive Testing (BINDT) has approved Training Solutions - SKF India Ltd as an Approved Training Organization (ATO). The British Institute of Non-Destructive Testing (BINDT) is an accredited certification body offering personnel certification against criteria set by International and European standards through the internationally recognized PCN Certification Scheme.

SKF Training Solutions India (Pune location) is already a BINDT approved examination centre since 2008 and in June 2013 initiated the process for Approved Training Centre.

After successful completion of an audit by BINDT in December 2013, SKF Training Solutions was certified as an approved training organization to conduct BINDT Vibration Analysis Category 1 course as per ISO 18436 till December 2019.

Customized learning plan

Quickest learning paths to required competency levels SKF reliability and maintenance training

Course levels

The SKF training courses focus on disseminating maintenance related knowledge worldwide. It offers various programme that are developed for easy application. SKF offers training courses by skill levels. Following this development path is not mandatory, yet highly recommended, as participants will realise the most benefits by taking the courses sequentially.

SKF Self-Learning Tools are a one-stop solution for students at various levels including the students of mechanical and other engineering streams. They offer impartial assessment, and help you to update your competencies to acquire new skills.

Basic

E- learning modules delivered online, 24/7, at SKF Self-Learning Tools. Introductory courses familiarize participants with basic terms and offer basic training on subjects such as bearings, lubrication, thermography, and more.

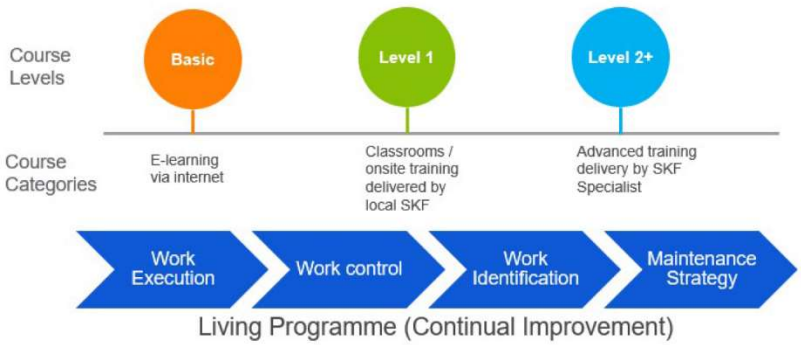
Level 1

Classroom courses taught by SKF specialists at customer locations or SKF facilities. A combination of theory and hands on instruction. Intermediate courses typically last 2-3 days.

Level 2 +

Classroom courses taught by SKF specialist or external experts at customer locations or SKF facilities. Advanced courses typically last 3-5 days.

Course categories



While specific course topics may vary to suit specific customer requirements, SKF training solutions' courses are organized to meet the demands of the five pillars of the SKF Asset Efficiency Optimization (AEO) workflow process as enlisted below.

Maintenance Strategy (MS)

Courses focus on developing a technically and fundamentally sound maintenance strategy to meet business goals.

Work Identification (WI)

Course topics include preventive maintenance, predictive technologies, information integration, decision support systems, and work order request generation.

Work Control (WC)

Course topics include maintenance planning and scheduling, standard job plans, spare parts alignment, supply and logistics.

Work Execution (WE)

Course topics include precision maintenance, best practices in lubrication, installation, precision alignment, balancing, and post-maintenance testing.

Living Program (LP)

Focuses on methods and technologies used to evaluate maintenance work and strategy, thereby "closing the loop" and making maintenance a continuous improvement process. Course topics include root cause analysis, reliability analysis, maintenance work close-out, machine redesign, and technology upgrades.

Reliability Training Centre at your site

The Reliability Training Centre is an attempt by SKF to enable customers to cater to their technical training requirements. A centre would consist of latest equipment in bearing maintenance and condition monitoring fields which shall give a unique opportunity to employees to attend hands on training programs and practical sharing of knowledge.

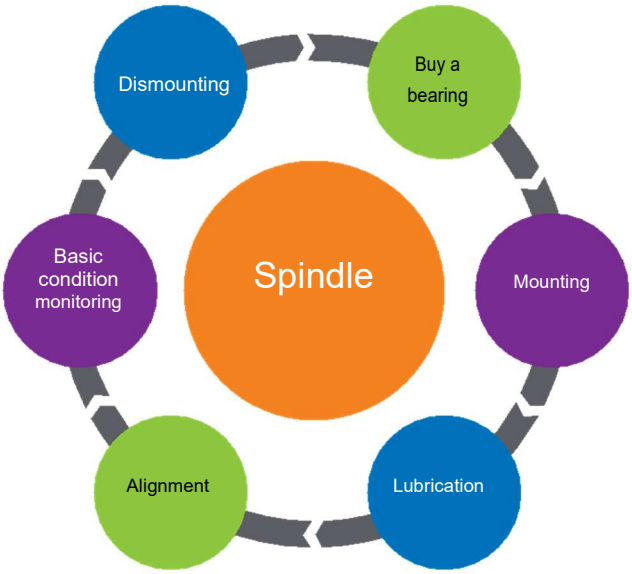
SKF partners with the customers to identify training courses and developing modules of learning based on TPM practices which consists of:

- Development of lesson plans
- Fixation of methodology
- Training calendar
- Train the trainer needs

SKF has closely partnered with some of the key customers in their industry to set-up a training centre at their premises. Some of the name include Holcim, Reliance Power, Tata Steel, Maruti Suzuki, Nestle, Bajaj etc.

SKF provides support in:

- Train the trainer
- Delivery of training
- Lesson plan preparation
- Regular evaluation



Training cell modules:

Mounting star (Bearing training kit)

A unique simulator consisting 40 different items

Used for:

- Handling precision shafts, control tolerances, prepare work area for assembly
- Identifying correct tools and tackles for bearing handling
- Applying correct mounting techniques to achieve full bearing service life
- Provides an easy way to stimulate real working conditions

Target: ITI fitters / technicians / line engineers / DTEs

Hands on skill developed

a. Bearing mounting

- Cold mechanical mounting
- Use of pullers, nuts, etc.
- Mounting using hydraulic techniques
- Mounting using hook spanners
- Mounting housed self-aligning ball bearings

b. Dismounting techniques

- Dismounting from blind assembly
- Use of pullers, nuts etc.

Alignment rig with tools

The SKF alignment rig is a set of various shafts, couplings, housings, belt drives and a coupled mass used for imparting training to technicians and line engineers who work with rotating machinery and its alignment.

Used for / skills developed:

- Handling alignment on shafts and belts / pulleys
- Application of shims for correct alignment and soft foot
- Correct tensioning of belts
- Identification of pulley wear / belt profile
- Provides an easy way to stimulate real working conditions
- Imparts knowledge to personnel on faster and better alignment methods
- Savings in power consumption due to better alignment
- Balance detection
- Condition monitoring

Target: ITI fitters / Shop floor technicians / Maintenance engineers / condition monitoring engineers / DTEs /GETs

Consist of- Alignment rig, laser alignment tools (shaft+belt), belt tension gauge, pulley gauge

Basic condition monitoring kit

A variety of hand held tools that are regularly used for on site condition monitoring stroboscope, tachometer, thermal camera, machine condition advisor

Target: Shop floor technicians / maintenance engineers / condition monitoring engineers and managers

Skills developed:

- Understanding of maintenance strategy and need of condition monitoring
- Various condition monitoring techniques and tools for same
- Hands on experience of using condition monitoring tools on test rig available
- Effective use of right technique to save increase MTBF and predictability

Self learning tool

Computer media driven interactive courses

- Self learning with the advantage of learning at your ease
- 22 titles, on topics from bearings, vibration to balancing and specific segments like cement, sugar etc.
- Web based learning, according to your convenience
- Audio visual pattern of courseware

Knowledge @ campus

In keeping with the requirements of the industry, Engineering Institutes often find themselves focusing more on a fixed curriculum. While it is important to educate students, they also need to be prepared to face the real world with soft skills. Wouldn't it be nice if there was a place where students could enhance their skills through hands-on experience? With the backing of such support skills students improve their employable potential in this highly competitive marketplace.

At SKF, to bridge the gap of academic curricula and real time industry world practices. SKF Training Solutions have designed special training packages that will suit the exact learning needs not just of the students, but of their faculty as well.

Some of the major offering that SKF has to offer Institutes are:

FFT Analyser Training Package:

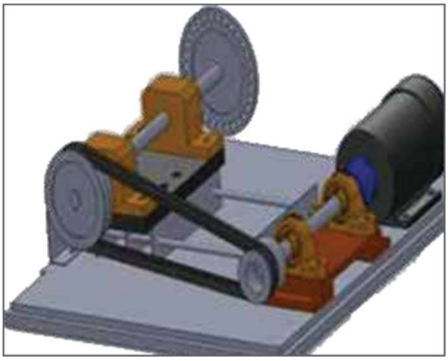
This training package includes on-site training on FFT analysis process and offers students a certification from SKF.

Several global organisations use the various technologies in FFTs for predictive maintenance. For students, this is an important milestone towards understanding requirements.

The training will include the supply of SKF FFT analysers, with the latest technological features and various attachments as per the syllabus of course. These analysers can be used for learning Condition monitoring, FFT analysis, Sound analysis, Dynamic analysis, Resonance
testing, data storage and recording for future use, etc. Students benefit from not just the course material, but also from the real-time case studies from various industries.

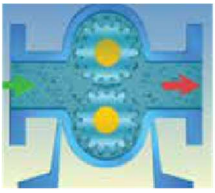
SKF has successfully implemented this at SKF Center of Excellence :

- Madhav Institute of Technology and Science, Gwalior
- Kalinga Institute of Industrial Technology, Bhubaneshwar
- Acropolis Institute of Technology & Research, Indore



Experimental test rigs:
The SKF experimental rig is a set of various shafts, couplings, housings, belt drives and a coupled mass used for imparting training to students who work with rotating machinery and the associated defects students will learn to detect various failures/defects in the rig to study and derive conclusions as per the research/practical requirement.

Online Learning tools:



These self-learning tools cover a range of topics like equipment maintenance, diagnostics of machinery, learning how major equipment works, etc. Students can benefit from a full range of computer-based learning tools which they can participate in as per their own schedule. As an essential part of your e- library, students can learn about topics including Analysis of resonance, Vibration analysis, Dynamic balancing, Rolling element bearings, etc.

SKF-Center of Excellence, An Institute partnership program:
SKF Training Solutions can partner with Engineering institutes on a strategic scale to have a joint initiative on setting up full-fledged 'Reliability Training Cell' and have joint training programs on mutually-agreed terms and conditions for nearby industries and colleges.

The partnership has a strong advantage to students as well as the institute in terms of ease of availability of latest technologies for Reliability Improvement. A differentiating factor for the Institute is the sustainable partnership with a global organisation like SKF.

Full-fledged SKF Training Centres have been established at:

- Madhav Institute of Technology and Science, Gwalior
- Kalinga Institute of Industrial Technology, Bhubaneshwar
- Acropolis Institute of Technology & Research, Indore

Training need analysis

Highest skills improvement opportunity for staff

Training Needs Analysis (TNA): The shift to a fully integrated, reliability and risk-based asset management strategy starts with a good initial understanding of where your staff is today and where your staff needs to be to attain optimum plant performance.

The TNA enables this crucial understanding, combining our experience in training and knowledge of maintenance and reliability.

The goal is to provide useful and meaningful information to help you focus on improvements for plant performance.

TNA is conducted with individuals or a group of your staff from the following work areas:

Managers
- Maintenance
- Reliability
- Engineering

Superintendents / Supervisors
- Mechanical maintenance
- Electrical maintenance
- Planning and stores

Engineers
- Mechanical
- Electrical
- Reliability
- Condition monitoring
- Application

Technicians
- Mechanical
- Electrical
- Reliability
- Condition monitoring
- Lubrication

Targeting twelve areas of competency for improvement

Opportunities for improvement are determined when training needs analysis is analysed.

Typical improvements fall in the following areas:

1. Bearing and seal technology
2. Power transmission
3. Lubrication
4. Root cause failure analysis
5. Oil analysis
6. Maintenance strategy
7. Non destructive testing
8. Vibration analysis
9. Thermography
10. Motor testing and diagnostics
11. Precision alignment and balancing
12. Planning and scheduling

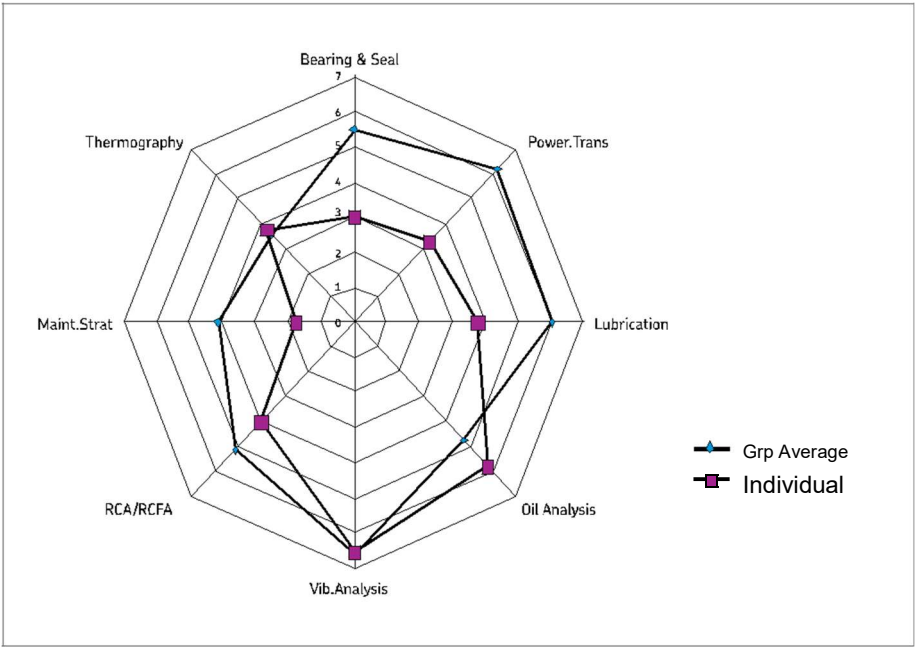
A progressive and structured approach to training assessment

Gap Analysis – Condition Monitoring Technician, Level 2

Skill gap analysis in all key areas of competency, the training needs analysis will give you a clearer perspective of your people's competency and skill levels.

The results are analysed and you will be provided with a report which includes:

1. A summary of individuals or group of individuals work profile.
2. A 'spider chart', showing a micro-level assessment of each question, with skill levels for each area of competency, opportunities for improvement as well as areas of exceptional performance (refer to spider chart above).
3. A skill level summary matrix showing a macro level assessment for each of the areas of competency.
4. A detailed proposal of recommendations for improvement for the individual or group of individuals supported by the finding of the analysis.



Faculty profile

Vijay Apte

Vijay has over 28 years of experience as a functional expert in the fields of maintenance, bearings and services ranging from plant health assessment, condition monitoring of equipment and mechanical services. He has hands-on experience in the above fields in key industrial segments like power, metals, pulp and paper and cement. As a faculty for SKF Training Solutions, Vijay delivers key trainings on world class maintenance, proactive maintenance techniques and condition monitoring. Vijay is SKF Certified Six Sigma Green Belt and has delivered more than 25,500 hours of professional training.

Kumaran Dakshinamurthy

Completed his mechanical engineering and is an ASNT Level 2 certified vibration analyst, Kumaran is also a BINDT Category-2 certified vibration analyst. With a rich experience of 24 years in the field of condition monitoring and dynamic analysis as well as more than 25,000 training hours completed, Kumaran Dakshinamurthy is one of the finest experts we have for training in vibration analysis.

Amit Mandal

Amit Mandal is a Sr. Faculty for SKF Training Solutions. He has completed B Tech Mechanical Engineering from Amravati University and Diploma in Bearing Technology from SKF College China. Amit is also a SKF Certified Six Sigma Green Belt and also has a strong domain knowledge in Bearing Maintenance and Application Engineering. He has completed his training in Self aligning solutions from SKF Sweden and Large Size Bearings and 4 Row TRB from SKF Germany. With 16 years experience and more than 22,000 Training hours delivered to more than 2,500 professionals across South Asia, Amit is one of the exceptional faculty we have at SKF Training Solutions.

Arun Prasath

Arun is B. Tech in mechanical engineering with 12 years of experience in condition monitoring. He is a BINDT category 2 certified vibration analyst. Expert in predictive reliability maintenance at and part of integrated maintenance solution contracts at SKF, Arun is truly as asset faculty for SKF Training Solutions.

Arun Kalyana Rajan Shenbakamurthy

A Mechanical Engineer from Madras University, Arun has over 21 years of experience in the fields of condition monitoring, laser alignment, in-situ dynamic balancing, thermography and dynamic analysis. A BINDT Level- II certified vibration analyst, he has worked in different key segments and industries like paper, cement, automobile, iron and steel, food and beverages, sugar etc. Also a certified SKF Six Sigma Green Belt, Arun has dedicated more than 6,000 hours towards training.

Vasant Terwadkar

Vasant has been with SKF for over 12 years now, with over 17 years of rich experience in the Textile segment and Engg industry. He has his B. Tech dergee in Textile Plant Engg and was ranked 1st in Shivaji University. Since his graduation, he has been associated with Textile OEMs and End users closely. He has been closely associated with imparting textile products training at Bangladesh, Indonesia, Malaysia, China and on site trainings on machine handling, bearing maintenance technology, practical mounting-dismounting. Apart from this segment training to application engineers and territory managers for enriching the" SKF experience" to the customers. He has developed many solutions for textile segment bringing a huge benefit to the industry. He has delivered over more than 6000 hours of classroom and practical trainings till date.

Rajesh Kumar

Rajesh Kumar has around 18 years of experience in steel rolling mill and bearing industry as a service engineer. He is a mechanical engineer with PGDM in operation management from Welingkar Institute of Management, Mumbai. He has delivered training programme for various customers across INDIA on topics like “Bearing Maintenance Technology”, ”Fundamentals Of Bearing Maintenance”, ”Practical Mounting & Dismounting Of Bearings”, ”Root Cause Of Bearing Damage Analysis”. etc. He has hands on experience in bearing mounting and dismounting as a maintenance engineer in steel industry.

Debottam Bose

Debottam has around 10 years of experience in Design and Application Engineering for the Heavy Industry. He is working with SKF since September 2011. He started his career as an Application Engineer based in Kolkata (2011-2017) and presently he is the Engineering Lead for Global Bearing Investigation Team, based in GTCI Bangalore. Prior to working with SKF, he was associated with SMS Siemag AG as a Design Engineer, for around 3.5 years. He has conducted more than 75 Training programs in Different Application Modules,all across India. His is qualified as B.E. (Mechanical) from Jadavpur University, Kolkata ; and M.Tech (Design Engineering) from BITS Pilani.

Arun M. Naik

A run has over 25 years in the industry, spent in the fields of production, maintenance, sales and service. A Mechanical Engineer by qualification, at SKF, he has been responsible for looking after sealing solutions for hydraulics and rotary equipment since 2008.

Nirmal Tosniwal

Nirmal Tosniwal, in his 5 years of experience, has worked as an application engineer for industries in Steel, Cement, Mining & Mineral processing, Textile and Power segment. Nirmal has done his B. Tech. in Mechanical Engineering from College of Engineering Pune (COEP) and is pursuing M. Tech. in Design engineering.

Vaibhav Katiyar

Vaibhav has worked in the industry over 9.5 years of experience, out of which seven years have been spent at SKF. He has worked on design engineering and application engineering projects. He has acquired experience in machine manufacturing, railway applications, and industries such as hydro and thermal power, sugar, paper, cement, packaging and the general engineering. He has done his M. Tech in Design Engineering from BITS Pilani.

Vaibhav Jain

Vaibhav Jain has been working in the industry for nearly 8 years, of which over 5 years have been with SKF. A mechanical engineer by qualification, his experience pans industries such as Oil & Gas, Power, Cement, Pulp & Paper, Steels, Automotive and Chemical and Fertilizers. He has perfected his reliability project capabilities through various roles and delivery of training sessions of more than 800 hours. His drive for excellence has seen him receive BINDT Level-1 vibration analyst, ISO CAT-2 Vibration Analyst certification and certified Machine Inspector / Auditor by SKF USA Inc.

Sagar Kamble

B. Tech. (Mechanical) from College of Engineering Pune, PGDBM + MBS, from Pune University. M. Tech (Design Engineering) from BITS Pilani, pursuing WILP. 4 years of experience in cooling applications using Vapour Absorption Chillers during association with Thermax Ltd. 5.5 years of experience in design and application engineering for renewable & traditional energy segment. Working with SKF since September 2012, as an Application Engineer based in Pune. Regularly conducts internal as well as external trainings on different application modules.

Vijaya Donge

Application Engineer - IM (Key Accounts - Direct Sales)

Vivek Choudhary

M. Tech in Industrial Engineering and Management from IIT Kharagpur, has spent over 5 years working as SKF application engineer with OEM customers in various segments such as machine tool, medical, material processing, food & beverage, printing, textiles and off highway. Currently he is working as an application engineer with IMSM key accounts team.

Sushant Mishra

BE mechanical (Govt Engg College Jagdalpur Chhattisgarh) having 10+ years of industrial experience. Key working areas: steel, aluminium, power and cement.

Manas Khatua

16 years experience in the industry, spent in the fields of manufacturing, quality, design, production, maintenance, sales and service. Experiences of industries such as Metal Industries, mining – iron and coal, cement and power, food and beverage & automobile sector. B. Tech. in Mechanical Engineering from Bhubaneswar. Currently handling the power transmission & seals platform.

Naresh Mahajan

Naresh is a Mechanical Engineer with varied experience across steel, power, cement and sugar industries amongst others. He has been working with SKF for the last four years, he brings with him 9 years of rich experience.

Mechanical Maintenance

In this course, we offer various trainings for bearing maintenance technology, basics of rotating machinery, lubrication in rolling element bearing, sealing solutions technology, root cause bearing damage analysis, and precision shaft alignment. These trainings will help the participants in learning some of the best practices in mechanical maintenance of rotating machinery thus improving its reliability.

Bearing maintenance technology – WE201

Course objective:

Goal of this course is to provide the participants with the knowledge and practical skills to select the best bearings for applications. Learn world's best practice in bearing, fitting and dismounting from engineers using the correct fitting and removal tools and techniques. This will improve reliability of the rotating equipment.

Assessments:

Entry and exit level tests with multiple choice questions.

Recommended for:

application engineer, condition monitoring engineer / design engineer, maintenance engineer / manager / supervisor, quality engineer, reliability engineer / manager / supervisor.

Prerequisite:

A fundamental knowledge and ability to use basic hand tool is required.

Course information:

Duration: 3 days (Pune),
2 days (Bhubneshwar, Jamshedpur)
Course fee: ` 39,600/- (Pune) and
` 16,000/- (Bhubneshwar, Jamshedpur) plus GST (per participant)
Max. Participation: 20

Course fees includes lodging and boarding facility at Pune location for 3 nights

Imp info:

Certification and written exam of ` 2,000/- is included with this course. Exam is conducted on the afternoon of the final day of class.

Course contents:

- Basics of bearings
- Ball bearing types
- Roller bearing types
- Bearing selection criteria
- Bearing life calculation
- Selection of fits and tolerance
- Bearing lubrication
- Mounting and dismounting
- Introduction to bearing failures and their causes
- Bearing storage and handling
- Maintenance tips

Course schedule:

Location	Date	
Pune	17-19	July 2019
	16-18	October 2019
	22-24	January 2020
	27-29	March 2020
Bhubaneshwar	19-20	June 2019
	25-26	September 2019
Jamshedpur	18-19	December 2019

Online training modules to supplement this training will be provided for one month with this course.

Basics of rotating machinery – WE202

Course objective:

How to improve the service life of machinery with rotating equipment systems. It focuses on most common rotating equipments such as motors, fans, pumps and gearboxes.

Assessments:

Entry and exit level tests with multiple choice questions.

Recommended for:

Application engineer / condition monitoring engineer / design engineer / maintenance engineer / manager / supervisor quality engineer, reliability engineer / manager / supervisor.

Prerequisite:

- A fundamental knowledge and ability to use basic hand tool is required.
- Atleast one year experience in maintenance

Course information:

Duration: 3 days
Course Fee: ` 27,000/- plus GST (per participant)
Max. participation: 20

Course contents:

Part 1: Industrial motors
- Bearing arrangements
- Friction
- Sealed-for-life lubrication
- Shaft and housing fits
- Mounting and dismounting
- Troubleshooting

Part 2: Industrial pumps
- Bearing arrangements
- ANSI vs. API design overview
- Pump bearings
- Cavitation
- Off-BEP operation
- Low bearing service life

Part 3: Industrial fans
- Bearing arrangements
- Controlling heat expansion
- Lubrication of fans
- Mounting and dismounting
- Grease selection: basics
- Case studies

Part 4: Industrial gearboxes
- Bearing arrangements
- Static, splash and circulating oil lubrication
- Lubricant selection
- Extending gearbox service life

Course on request

Online training modules to supplement this training will be provided for one month with this course.

Lubrication in rolling element bearing – WE204

Course objective:

The objective of this course is to provide the knowledge and skills necessary to resolve lubrication, cleanliness, and sealing issues in order to extend bearing service life.

Upon completion of this course, attendees will be able to understand the principles of bearing life, understand the basics of lubrication theory and the effect of lubrication and contamination on bearing life.

Assessments:

Entry and exit level tests with multiple choice questions.

Recommended for:

Application engineer / condition monitoring engineer / design engineer / maintenance engineer / manager / supervisor / quality engineer / reliability engineer / manager / supervisor.

Prerequisite:

Basic machine maintenance skills and experience.

Course information:

Duration: 2 days

Course fee: ` 18,000/- plus GST (per participant)

Course contents:

- Basics of bearings
- Lubrication theory
- Selection of proper lubricant (Oil and grease)
- Contamination and cleanliness
- Sealing
- Bearing service life
- Lubrication systems

Course on request

Sealing solutions technology

Course objective:

This course is designed to develop knowledge in industrial sealing products for rotary and reciprocating motion, application fundamentals and competence in devising effective sealing solutions.

The information and training will enable students to understand the concepts and application of sealing solutions to achieve optimum seal, bearing and equipment performance.

Assessments:

Entry and exit level tests with multiple choice questions.

Recommended for:

Machinery designers / reliability engineers / maintenance engineers and technicians / consultants.

Course information:

Duration: 1 day
Course fee: 9,000/- plus GST (per participant)
Max. participation: 20

Course contents:

- To provide the participants with the fundamentals of rotary and reciprocating seals, principles of sealing operations, elastomeric materials and their properties, and the effects of operating parameters in seal performance
- To have an understanding of the various seal designs, their applications and seal design development trends
- To learn a systematic approach to "sealing system failure analysis", most common failure modes; includes participation in actual case studies
- To provide an overview of common sealing components used in various industrial applications and a guide to sealing system designs in heavy industry segments
- To learn appropriate handling and installation procedures, methods, tools and parameters; includes a workshop environment for hands-on experience
- To provide an overview of other sealing systems and services including SKF custom sealing solutions

Course schedule:

Location	Date
Madurai	11 April, 2019
Baddi	4 July, 2019
Jamshedpur	13 February, 2020

Root cause bearing damage analysis – WE204

Course objective:

Goal of this course is to provide the participants with the competence to give optimal support to users in solving their problems, by gaining:

1. Thorough understanding of the various bearing failure phenomena and the ability to co-ordinate the necessary actions for failure analysis.
2. Skill to provide an appropriate proposal to eliminate, or at least reduce the bearing failure problem.

Assessments:

Entry and exit level tests with multiple choice questions.

Recommended for:

Application engineer / maintenance engineer / supervisor, quality engineer, reliability engineer

Prerequisite:

Basic knowledge of bearings and their applications

Course information:

Duration: 2 days
Course fee: 26,400/- plus GST (per participant)
Max. participation: 15

Course fees includes lodging and boarding facility at Pune location for 1 night

Course contents:

- Review on bearings and their application
- Load path patterns
- ISO 15243–Bearing failure modes and classification
- Methodology
- Exercise on bearing failure study
- How to identify spurious and reconditioned bearings

Course schedule:

Location	Date	
Pune	16-17	May 2019,
	26-27	September 2019
	13-14	February 2020

Online training modules to supplement this training will be provided for one month with this course.

Precision shaft alignment - WE240

Course objective:

- Learn the reasons and definitions of alignment and misalignment
- Discuss types of misalignment, including angular, offset, horizontal, and vertical
- Understand the steps and procedures required to inspect and prepare a machine prior to alignment, including alignment tools and methods
- Learn the list of proactive steps taken to ensure a successful alignment process
- Practice discuss mechanical, dial, and laser alignment methods
- Understand the mechanical and laser techniques

Assessments:

Entry and exit level tests with multiple choice questions.

Recommended for:

Service, maintenance, machine repair or plant / facility engineering staff of an industrial or OEM facility.

Prerequisite:

Basic machine maintenance skills and experience. General computer and calculating skills are helpful.

Course information:

Duration: 1 days
Course fee: ` 8,000/- plus GST (per participant)
Max. participation: 15

Course contents:

- Introduction to shaft alignment
- Alignment definitions
- Pre-alignment checks
- Soft foot
- Rough alignment
- Alignment moves for precision and problem solving
- Alignment methods
- Hands-on laser alignment tool

Course on request

Online training modules to supplement this training will be provided for one month with this course.

Electrical maintenance









In this course, we offer trainings related to electrical motors, fundamentals of electrical equipment maintenance, and advanced condition based maintenance of electrical equipment. Through these trainings, the participants will learn everything from the fundamentals of motoring, to various diagnostic testing methods and responsive analysis of electrical equipment.

Electrical motor certification training – WE 231

Course objective:
Attendees will learn best practices for electric motor bearing service and repair.

Assessments:
Entry and exit level tests with multiple choice questions.

Recommended for:
Service, maintenance, machine repair or plant / facility engineering staff of an industrial or OEM facility.

Prerequisite:
Basic machine maintenance skills and experience. Basic knowledge of bearings and electrical motors.

Course contents:

- Bearing arrangements in electric motors
- Motor teardown and bearing dismounting
- Shaft and housing fits
- Motor assembly and bearing mounting
- Lubrication
- Post service procedures
- Most common bearing failures

Course on request

Fundamentals of electrical equipment maintenance

Course objective:

Goal of this course is to review fundamentals of motors, generators, cables, switchgears, power and distribution transformers, along with their construction, Installation, commissioning testing and maintenance.

This course will cover the latest maintenance trends and diagnostics testing.

Assessments:

Entry and exit level tests with multiple choice questions.

Recommended for:

Electrical manager / application engineer, design engineer

Prerequisite:

Basic knowledge of electrical equipment and experience in maintenance will be helpful.

Course information:

Duration: 2 days
Course fee: ` 16,000/- plus GST (per participant)
Max. participation: 20

Course contents:

- AC Motor / generator: Construction and types, installation, commissioning and maintenance test.
- Power cable: Construction, installation, commissioning and diagnostic testing
- Cable fault detection
- Power and distribution transformers: Construction, installation, commissioning and diagnostic testing.
- Switchgears: Construction, installation, commissioning and diagnostic testing.

Course on request

Advanced condition based maintenance of electrical equipment

Course objective:

The participants will learn about various diagnostic testing methods like: Offline and online testing, high level test like motor current and torque signature, acoustic emission, surge testing (IEEE522), tan delta and capacitance measurement, partial discharge measurement, dielectric response analysis. The latest VLF (Very Low Frequency) HIPOT will be discussed in comparison to DC HIPOT and AC HIPOT Testing as per IEEE 433.

Assessments:

Entry and exit level tests with multiple choice questions.

Recommended for:

Electrical / manager / supervisor, application engineer, condition monitoring engineer, design engineer, maintenance engineer / manager / supervisor / reliability engineer / manager / supervisor.

Prerequisite:

Basic knowledge of electrical equipment and experience in maintenance will be helpful.

Course contents:

Part I: Power cable

- Fundamentals of cable construction
- Commissioning testing / acceptance tests at site
- Diagnostic testing
  a. Insulation resistance test
  b. Polarization index
  c. Tan delta and capacitance measurement
  d. Partial discharge measurement
- Low frequency testing

Part II: Transformers

1. Fundamentals of transformers
2. Acceptance tests
5. Various diagnostic testing
6. Online and offline testing and monitoring

Part III: Motors and generators

- Fundamental of motors, generators and its construction and type
- Online testing for condition monitoring
- Offline testing to assess the condition of the motors
- Interpretation of the test results

Course on request

Online training modules to supplement this training will be provided for one month with this course.

Condition monitoring technology

In this course, we offer trainings related to non-destructive testing, thermography, vibration analysis, and machinery lubrication and oil analysis. This course will highlight the usage of NDT methods, and use of predictive maintenance for identifying urgent problems and implementing practical solutions.

Introduction to non-destructive testing

Course objective:
This course will help in selection of NDT methods for different products like forging, rolling, casting, welding, machine and used components.

Recommended for:
Condition monitoring engineer / electrical engineer / manager / supervisor engineering manager / supervisor engineering manager.

Assessments:
Entry and exit level tests with multiple choice questions.

Prerequisite:
Minimum 2 years of experience in maintenance, production, planning and condition monitoring in any industry

Course contents:

- Introduction to NDT
- Discontinuities associated with different manufacturing process.
- Principal, applications and limitations NDT methods
  - Liquid penetrant examination
  - Magnetic particle examination
  - Ultrasonic examination
  - Visual examination
  - Radiography examination

Course on request

Basics of thermography

Course objective:
This course is geared to equip the new user of a thermography camera in its use for a variety of condition monitoring and predictive maintenance application.

Assessments:
Entry and exit level tests with multiple choice questions.

Recommended for:
Condition monitoring engineer / electrical engineer / supervisor, engineering manager / mechanical maintenance engineer / supervisor, reliability engineer / supervisor, operations manager / supervisor.

Prerequisite:
Minimum 2 years of experience in any industry

Course information:
Duration: 2 days
Course fee: ` 16,000/- plus GST (per participant)
Max. participation: 20

Course fees include lodging and boarding facility at Pune location for 1 night

Course contents:
- Basic theory of thermography
- Thermal science fundamental
- Basic camera setup and operation
- Heat transfer and infrared science
- Thermal measurement
- Application of thermography
- Hands on use of thermal imaging equipment

Course on request

Vibration analysis level 1 – WI201

Course objective:

- To highlight the urgent need for problem diagnostics and implement practical solutions by vibration analysis.
- Bring to focus the importance of condition monitoring to improve the availability of operating machines, scientific problem diagnostics and effective maintenance methodologies.
- This course will help you to identify machinery problems and to find cost effective solutions.

Assessments:

Entry and exit level tests with multiple choice questions.

Recommended for:

Service, maintenance, condition monitoring, machine repair or plant / facility engineering staff of an industrial or OEM facility.

Prerequisite:

Basic machine maintenance skills and experience. General computer and calculating skills are helpful.

Course information:

Duration: 2 days (Pune),
2 days (Chennai, Bhubneshwar)
Course fee: ` 26,400/- (Pune) and
` 16,000/- (Chennai, Bhubneshwar)
plus GST (per participant)
Max. participation: 15

Course fees include lodging and boarding facility at Pune location for 1 night.

Course contents:

- Basics of condition based maintenance
- Fundamentals of machinery vibration
- Vibration standards for various equipment according to ISO 10816
- Instrumentation: Sensor types, mounting methods and applications
- Practical with FFT analyzer on demonstration rig
- Establishing vibration measurements
- Spectrum analysis
- How to analyse 'typical' machinery problems
- Group work and case studies

Course schedule:

Location	Date
Pune	6-7 June 2019, 24-25-October 2019,
	9-10 January 2020
Chennai	7-8 August 2019
Bhubaneshwar	23-24 October 2019

Online training modules to supplement this training will be provided for one month with this course.

Vibration analysis level 2 – WI202

Course objective:

Bring to focus the importance of condition monitoring to improve the availability of operating machines, scientific problem diagnostics and effective maintenance methodologies. To highlight the urgent need for problem diagnostics and implement practical solutions by vibration analysis.

Assessments:

Entry and exit level tests with multiple choice questions.

Recommended for:

Service, maintenance, condition monitoring, machine repair or plant / facility engineering staff of an industrial or OEM facility.

Prerequisite:

Vibration analysis level-1 WI201 or previous experience in vibration required. General computer and calculating skills are helpful.

Course information:

Duration: 3 days

Course fee: ` 39,600/- plus GST (per participant)

Max. participation: 15

Course fees include lodging and boarding facility at Pune location for 2 nights

Course contents:

- The basics of condition-based maintenance
- Fundamentals of machinery vibration (Brief review of vibration analysis level-1)
- ISO 10816 standards for different equipment
- Signal processing and data acquisition
- Vibration signature analysis
- Phase analysis
- Practical's with FFT analyzer on demonstration rig
- Machinery fault diagnosis
- Corrective actions
- Case studies and discussion

Course schedule:

Location	Date
Pune	16-18 April 2019, 20-22August 2019, 27-29 November 2019

Online training modules to supplement this training will be provided for one month with this course.

Machinery lubrication and oil analysis

Course objective:

With hundreds of lubricant types, base stocks, additive packages and viscosity grades to choose from, how a person can decide which lubricant is right for a machine. After attending these courses, you will be empowered with the knowledge to understand the important lubricant properties and how to strategically select the correct lubricant for each machine application.

Assessments:

Entry and exit level tests with multiple choice questions.

Recommended for:

Application engineer, condition monitoring engineer, engineering manager / supervisor / mechanical maintenance engineer / manager / supervisor / reliability engineer / manager / supervisor.

Prerequisite:

Basic machine maintenance skills and experience.

Course information:

Duration: 2 days
Course fee: 16,000/- plus GST (per participant)
Max. participation: 20

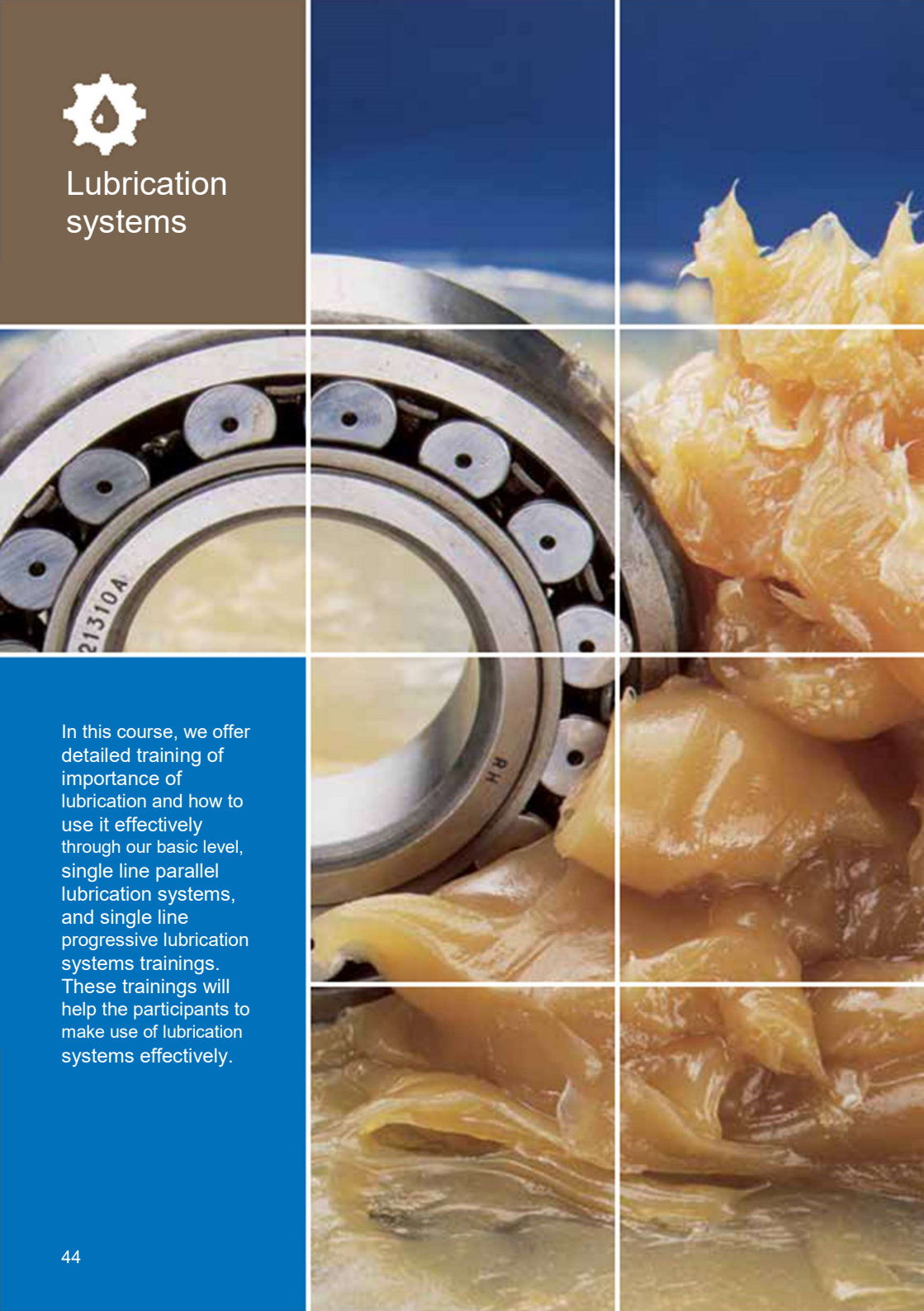
Course fees include lodging and boarding facility at Pune location for 1 nights.

Course contents:

- Maintenance strategy
- Lubrication theory
- Lubricant formulation
- Grease application and performance
- Lubricant selection
- Lubricant application
- Lubricant condition control
- Lube storage and management
- Oil analysis

Course on request

Lubrication systems



In this course, we offer detailed training of importance of lubrication and how to use it effectively through our basic level, single line parallel lubrication systems, and single line progressive lubrication systems trainings. These trainings will help the participants to make use of lubrication systems effectively.

Introduction to lubrication systems – Basic level

Course objective:

To equip our design, sales, service, maintenance, machine repair or plant engineering staff from various mechanical and OEM industries all over the world the knowledge and importance of:

- The right lubricant
- In the right amount
- With the right lubrication system
- At the right time
- At the right lubrication point
- Highlights on lubrication possible even in machine running condition - improved equipment availability
- This program helps in saving time – with optimum manpower utilization
- Understanding about better lubrication system that can be achieved, when the components of systems are in motion.
- To equip technical people on how lubrication can help in energy saving

Principle:

Small quantities of lubricant fed at more frequent intervals achieve better lubrication compared to large quantities fed at less frequent intervals.

Assessments:

Entry and exit level tests with multiple choice questions.

Recommended for:

Design, sales, service, maintenance, machine repair or plant / facility engineering staff of an industry.

Prerequisite:

Basic mechanical knowledge, general computer and calculating skills.

Course information:

Duration: 4 days

Course content:

- Why lubrication systems?
- Basic lubricants preferred
- The basics of Lubrication Systems (LS)
- Taxonomy of Centralized Lubrication Systems (CLS)
- Components used in CLS and its function and importance
- Principle of CLS with industrial examples
- Operational theory behind each CLS
- Benefits of CLS
- Lincoln manufacturing CLS (In brief : Ref: Advance level) and its industrial application / benefits

Course on request

Single line parallel lubrication systems

Course objective:

- To equip our design, sales, service, maintenance, machine repair or plant engineering staff from various mechanical and OEM Industries all over the world the knowledge, importance and advantages of single line parallel systems
- This program helps in saving time – with optimum manpower utilization
- Understanding about the optimized lubrication system achieved by single line parallel systems, which guarantees delivery of predetermined amount of lubricant during equipment operation

Assessments:

Entry and exit level tests with multiple choice questions.

Recommended for:

Design, sales, service, maintenance, machine repair or plant / facility engineering staff of an industry.

Prerequisite:

Basic mechanical knowledge, general computer and calculating skills.

Course information:

Duration: 3 days

Course content:

- Why single line parallel lubrication systems?
- Basic lubricants preferred
- The basics of single parallel lubrication systems
- Components used in single line parallel and its function and importance
- Principle of single line parallel system with industrial examples
- Operational theory behind each single line parallel system
- Benefits of single line parallel systems
- Importance of injectors used in the assembly
- Testing of the system at on site condition
- Lincoln manufacturing in brief on single line parallel systems and its industrial application/benefits

Course on request

Single line progressive lubrication systems – Advance level

Course objective:

- To equip our design, sales, service, maintenance, machine repair or plant engineering staff from various mechanical and OEM industries all over the world the knowledge, importance and advantages of single line progressive systems
- This program helps in saving time – with optimum manpower utilization
- Understanding about the optimized lubrication system achieved by single line progressive systems, which guarantees delivery of predetermined amount of lubricant during equipment operation

Assessments:

Entry and exit level tests with multiple choice questions.

Recommended for:

Design, sales, service, maintenance, machine repair or plant / facility engineering staff of an industry.

Prerequisite:

Basic mechanical knowledge, general computer and calculating skills.

Course information:

Duration: 3 days

Course content:

- Why single line progressive lubrication systems?
- Basic lubricants preferred
- The basics of single line progressive lubrication systems
- Components used in single line progressive and its function and importance
- Principle of single line progressive system with industrial examples
- Operational theory behind each single line progressive system
- Benefits of single line progressive systems
- Importance of progressive distributors used in the assembly
- Testing of the system at on site condition
- Lincoln manufacturing in brief on single line progressive systems and its industrial application/benefits

Course on request

Original equipment manufacturers

In this course, we offer trainings to Original Equipment Manufacturers (OEM) regarding bearing maintenance practices and failure analysis, and machine condition monitoring. The service engineers are mainly trained for analysing the failed bearings and point out reasons for equipment failure and suggest a corrective action to the end users.

Recent times have seen a surge in the Industrial Original Equipment Manufacturers (OEM) to develop a strong services team. This acts as a highly profitable business for organizations while ensuring higher end-customer satisfaction levels.

SKF has extended its knowledge and capabilities in partnering with many such OEMs to develop their services team. Some of the ways in which SKF has jointly partnered with OEMs include:

- Product specific training for newly recruited Engineering trainees and lateral joinees
- Joint training programs for end-customers by leveraging on SKF knowledge
- Training program for the Operations and Maintenance (O&M) teams
- Pre-field competence development for channel services teams

The above training focus on developing the participant's competence on bearings, rotary equipment, condition based maintenance techniques (like Vibration Analysis, Infrared Thermography and their application), Shaft Alignment, Balancing and Reliability Engineering.

The following table highlights the training modules and their deliverables:

Module	What is it	How does it work
Joint customer programs	• Developing joint training program for end users of OEM. • SKF acts as a knowledge partner for the participating organization	Customized module with customer's training department to address their end user challenges
Customer's services teams	• Customized training program for their Internal services teams to develop their competence on rotary equipment, condition based maintenance and bearings	Identifies areas of improvement (competence) of OEM and develops a training module
OEM's channel services teams	• Trainings focusing on basic maintenance practices for the channel teams of OEMs • Phase-wise competency development	SKF Training Solutions develops a customized training program as a pre-field material for customer's channel teams/ service technicians
Product specific training for newly recruited engineering trainees and lateral joinees	• Training on components like bearings, lubricants, seals and power transmission (chains and belts). • Know how on rotary equipment and basics of condition based maintenance techniques	SKF Training Solutions develops a customized training program as per the customer's requirements

These trainings are brand neutral and focus on developing the participant's compe-tence in the identified fields.

Bearing maintenance practices and failure analysis

For O&M service engineers

Course objective:

The course is designed to develop understanding of parameters required to be considered during servicing and maintenance of rotating equipments like gearbox, fan, pumps, motors as well as material handling equipments.

Along with the right practices, by the completion of the course, candidate will understand about how to analyse the failed bearing and point out reasons for equipment failure.

Assessments:

A fundamental knowledge of and ability to use analytical skill

Recommended for:

Service, maintenance, reliability engineers from O&M divisions

Prerequisite:

Basic mechanical knowledge, general computer and calculating skills.

Course information :

Duration: 2 days
Course Fee: ` 20,000/-
plus GST (per participant)
Max participation: 10

Course fees include lodging & boarding facility at Pune location

Course information:

Duration: 3 days

Course content:

- Bearing basics
- Ball and roller bearing used for rotating equipment
- Bearing designations
- Bearing arrangements
- Factors affecting Bearing service life
- Lubrication practices
- Mounting and dismounting guidelines and shaft condition
- Need of bearing damage analysis
- How to perform 'Bearing Damage Analysis'
- Making a RCFA report
- New solutions

Course on request

Machine condition monitoring

For O&M service engineers

Course objective:

The course is designed to develop understanding of parameters required to be considered during inspection, servicing and condition monitoring of rotating equipments like gearbox, fans, pumps, motors as well as material handling equipments.

At the end of course, candidate will understand about how to judge and analyse condition of the machine based on parameters like Vibration analysis and suggest corrective action to the end user. This is aimed to increase ultimately service life of the machine/component.

Recommended for:

Service, maintenance, reliability, testing engineers from O&M divisions

Prerequisite:

A fundamental knowledge of and ability to use analytical skill

Course information :

Duration : 2 days
Course Fee: 20,000/- Plus GST (per participant)
Max participation: 10

Course fees include lodging & boarding facility at Pune location

Course content:

- Maintenance and service strategies
- Need for Condition Based Maintenance
- Different machine condition parameters
- Application of Visual inspection, Thermography, Lub oil analysis Ultrasonic, Noise etc
- Machinery Vibration fundamentals
- Analyzing vibration spectra
- Data collection guidelines
- ISO-10816 guidelines for evaluation
- Case studies

Course on request

Industry specific

In this course, we offer industry specific trainings such as bearing reliability in aggregate and cement industry, paper industry, steel processing industry, and food and beverage processing industry. These training will help participants learn about real solutions to real problems related to bearing reliability and maintenance in machinery used in different industries.

Bearing reliability in aggregate and cement industry – WE212

Course objective:
Participants will learn about real solutions to real problems related to bearing reliability and maintenance in machinery used in the aggregate and cement industry.

Assessments:
Entry and exit level tests with multiple choice questions.

Recommended for:
Plant engineers, maintenance / engineering managers, engineers, reliability managers / engineers, maintenance supervisors / team leaders, general maintenance and plant and maintenance planners, mechanical shop managers, mechanical repair services providers, maintenance operations coordinators and technical maintenance trainers.

Prerequisite:
Experienced professionals from cement and aggregate industries

Course information:
Duration: 2 days
Course fee: ` 8,000/- plus GST (per participant)
Max. participation: 20

Course contents:
- Aggregate and cement industry overview
- Bearings in aggregate and cement making machinery
- Crushers, conveyors, vibrating screens, kilns, coolers, roller presses
- Bearing installation and maintenance
- Mounting and dismounting of rolling element bearings
- Bearing damage examples

Course on request

Bearing reliability in paper industry – WE214

Course objective:
Attendees will learn the skills necessary to successfully install and maintain rolling element bearings in rotating machinery found in paper machine applications.

Assessments:
Entry and exit level tests with multiple choice questions.

Recommended for:
Service, maintenance, machine repair, roll shop or plant / facility engineering staff of a paper machine. Managers and technicians of paper machines and OEM facilities responsible for rolling bearing performance and reliability. Rotating equipment engineers, reliability engineers, millwrights, mechanics, and maintenance supervisors.

Prerequisite:
Experienced professionals from pulp & paper industry

Course information:
Duration: 2 days
Course fee: ` 16,000/- plus GST (per participant)
Max. participation: 20

Course contents:
- Rolling element bearing in paper machines
- Mounting and dismounting methods typical to paper machine applications
- Installing and lubricating bearings in paper machines
- Maintaining installed bearings in paper machines
- Troubleshooting common bearing problems
- Introducing condition-based maintenance concepts

Course on request

Bearing reliability in steel processing industry

Course objective:
Attendees will learn the skills necessary to successfully install and maintain rolling element bearings in rotating machinery found in steel processing industry machine applications.

Assessments:
Entry and exit level tests with multiple choice questions.

Recommended for:
Service, maintenance, machine repair, roll shop or plant / facility engineering staff of a steel machine. Managers and technicians of paper machines and OEM facilities responsible for rolling bearing performance and reliability. Rotating equipment engineers, reliability engineers and maintenance supervisors.

Prerequisite:
Experienced professionals from steel industry

Course information:
Duration: 2 days
Course fee: ` 16,000/- plus GST (per participant)
Max. participation: 20

Course contents:
- Steel industry overview
- Rolling element bearing in steel processing machines
- Installing and lubricating bearings in steel industry
- Maintenance of bearings
- Troubleshooting common bearing problems in the process
- Introducing condition-based maintenance concepts

Course on request

Bearing reliability in food and beverage processing industry

Course objective:
Attendees will learn the skills necessary to successfully install and maintain rolling element bearings in rotating machinery found in food and beverage machine applications.

Assessments:
Entry and exit level tests with multiple choice questions.

Recommended for:
Service, maintenance, machine repair, roll shop or plant / facility engineering staff of a food and beverage machine. Managers and technicians of paper machines and OEM facilities responsible for rolling bearing performance and reliability. Rotating equipment engineers, reliability engineers and maintenance supervisors.

Prerequisite:
Experienced professionals from food and beverage industry

Course information:
Duration: 2 days
Course fee: ` 16,000/- plus GST (per participant)
Max. participation: 20

Course contents:
- Food and beverage industry overview
- Rolling element bearing in food and beverage processing machines
- Installing and lubricating bearings in food and beverage Industry
- Importance of sealing solutions and brief on seals
- Importance of power transmission and brief on power transmission products
- Introducing condition-based maintenance concepts and various condition monitoring techniques in food and beverage

Course on request

Planning and strategy

In this course, we offer various trainings such as proactive maintenance techniques, world class maintenance, reliability centered maintenance, spare parts management and inventory control, and root cause analysis. This course will help the participants plan and strategies maintenance related activities, analyse the root cause of various issues and take necessary actions.

Proactive maintenance techniques – MS210

Course objective:
SKF has developed this course to address industry need for maintenance personnel to have the knowledge and tools to perform truly proactive and precision maintenance.

Assessments:
Entry and exit level tests with multiple choice questions.

Recommended for:
Application engineer, condition monitoring engineer / technician, design engineer, maintenance engineer / quality engineer, reliability engineer / TMP engineers.

Prerequisite:
Basic machine maintenance skills and experience

Course contents:

- Overview of proactive maintenance
- Fundamentals of machine condition
- Machinery troubleshooting
- Precision shaft alignment
- Dynamic balancing
- Maximizing bearing life
- Asset life cycle costing
- Introduction to vibration analysis

Course on request

Note: Certification and written exam of ` 2,000/- is included in this course. Exam is conducted in the afternoon of the final day of class.

World class maintenance – MS200, MS331

Course objective:
To provide reliability engineers with the necessary knowledge and abilities to support the implementation of asset reliability improvement processes in their plant and gain a working knowledge of maintenance strategy review techniques focused upon Reliability Centred Maintenance (RCM).

Assessments:
Entry and exit level tests with multiple choice questions.

Recommended for:
Reliability manager / supervisor, planning manager / planner / TMP engineers / maintenance manager

Prerequisite:
Basic machine maintenance skills and experience.

Course information:
Duration: 4 days
Course fee: ` 40,000/- plus GST (per participant)
Max. participation: 15

Course fees include lodging and boarding facility at Pune location for 3 nights

Course contents:
- Maintenance strategies
- AEO and Reliability Centred Maintenance (RCM)
- Condition monitoring
- Balancing and alignment
- Oil analysis
- Root Cause Analysis (RCA)
- Wrench time
- Bench marking-maintenance audit

Course on request

Reliability centered maintenance – MS332

Course objective:
The objective of this training is to provide participants the necessary knowledge of the Maintenance Strategy Review (MSR) and Reliability Centred Maintenance (RCM) methodology.

Assessments:
Entry and exit level tests with multiple choice questions.

Recommended for:
Reliability manager / supervisor, planning manager / planner / supervisor, maintenance managers

Prerequisite:
Basic maintenance skills and experience.

Course information:
Duration: 2 days
Course fee: ` 28,000/- plus GST (per participant)
Max. participation: 15

Course fees include lodging and boarding facility at Pune location for 1 night

Course contents:
- Maintenance strategy
- Know how to describe the RCM process flow
- Understand the importance of identifying and categorizing assets
- Understand criticality and the FMECA approach in RCM
- Develop a RCM analysis, as well as know what the implications are of making the strategy work
- Understand the requirements for RCM
- Recognize the importance of data structure
- RCM customization
- Why to conduct a task comparison
- How to implement RCM
- Recognize what a living program is
- Case study and discussion

Course on request

Spare parts management and inventory control – WC230

Course objective:
To provide participants with a sound knowledge and understanding of spares and inventory management in the Maintenance Repair and Operations (MRO) environment. It includes those activities in an organization that ensure the optimal and timely availability of spare parts in order to meet maintenance timely demands.

Assessments:
Entry and exit level tests with multiple choice questions.

Recommended for:
Engineers, supervisors and managers involved with industrial maintenance inventory control, planning, scheduling purchasing, reliability and maintenance engineering, logistic support, quality, production and warehouse management.

Prerequisite:
Basic knowledge of planning and handling spares.

Course contents:
- Spare parts and inventory management processes and principles
- Basic spare part and inventory management terminology
- The importance and relations of spare part and inventory management with respect to business goals
- Identifying, structuring, and classifying spare parts on their criticality, order and re-order parameters, along with other spare parts characteristics
- Applying basic analysis techniques to optimize the availability of spares and cost-effectively handle obsolete spares

Course on request

Root Cause Analysis- LP 200

Course objective:

Formal Root Cause Analysis (RCA) processes have been adopted by many companies throughout the world with demonstrable benefits. The purpose of this course is to introduce a process for RCA and how we can apply it within condition monitoring work.

We will also study some techniques that have been developed to help get to the root cause of issues. It is expected that these tools will be used from time to time by all of the people attending the course.

At the end of this course you should:

- Be able to execute a RCA study
- Be confident in participating as a team member in a complex multi-disciplinary RCA study
- Understand and recognise RCA related business opportunities

Recommended For:

Reliability manager / supervisor, planning manager / planner / supervisor, maintenance managers

Prerequisite:

A fundamental knowledge of and ability to use analytical skill

Course fees include lodging & boarding facility

Course content:

- Introduction: Background
  What is RCA?
  Importance of RCA
- RCA Processes: Effective problem solving
- Defining problem
- Cause and Effect technique
- Why-Why technique
- Why Tree
- RCA in practice: Defining objective
- Capturing evidence
- Interviews
- Preparing event sequence
- Brainstorming
- Fishbone diagram
- When to stop

Course on request

Business and manufacturing excellence

In this course, we offer trainings related to lean manufacturing and supply chain management. The trainings will provide the participants with sound knowledge of lean application and implementation for better workplace management. The training will also help improve the organization’s overall efficiency.

Lean manufacturing

Course objective:
To provide participants with a sound knowledge and understanding of the terms, terminology, and benefits of lean manufacturing. To conduct value stream maps of the current state, identify the potentials for reduced waste and improved flow, and develop a future state map. Participate in the development of a site-specific lean implementation road map.

Need-based training sessions can be conducted in the areas of lean applications and implementation subsequently. One such popular and valuable program is “5S Technique for Workplace Management”.

Assessments:
Entry and exit level tests with multiple choice questions.

Recommended for:
All employees working at a company instituting lean manufacturing.

Prerequisite:
Basic knowledge of manufacturing processes and one year of industrial experience.

Course information:
Duration: 2 Days
Course fee: ` 16,000/- plus GST (per participant)
Max. participation: 20

Course contents:
1. What is lean?
   - Origin, definition
   - Concept of value
   - Value-added and non-value added activities
   - Lean management philosophy (Game / Exercise on lean)
2. What is MUDA, MURA and MURI (Japanese words)
   - MUDA (7 Deadly wastes)
   - MURA (Unreasonableness)
   - MURI (Inconsistencies)
   - How does lean overcome them?
3. Wastes (MUDA)
   - Types of wastes
   - Identification of wastes (Exercise)
   - Significance / effect / causes of wastes (Exercise and simulation)
4. Application of wastes (MUDA)
   - Manufacturing
   - Services
   - Software development
5. Lean success stories

The above will be an introductory and awareness session. The participants will thoroughly understand the concept of lean and wastes (MUDA). This session will prove to be a head start for exploring the possibility of applying lean techniques organization wide.

Course on request

Note: Certification and written exam of ` 2,000/- is included in this course. Exam is conducted in the afternoon of the final day of class.

Supply chain management

Course objective:
To provide participants with a sound knowledge and understanding of the supply chain concept to improve an organization's overall supply efficiency. Other concepts included are the definitions of SCM & Logistics, identification procedures, an overview of methods, processes, and systems that are used in the operation of supply chains, and the applications of methods, processes, and systems to improve supply chain performance.

Assessments:
Entry and exit level tests with multiple choice questions.

Recommended for:
Middle-level managers from marketing, e-commerce, sales and operations, strategic planning and general management

Prerequisite:
One year experience in procurement, stores, warehouse and basic knowledge of material flow in the Industry.

Course information:
Duration: 2 days
Course fee: ` 16,000/- plus GST (per participant)
Max. participation: 20

Course contents:
- Logistics and SCM
- Third party logistics service providers
- Warehousing management
- Warehousing functions
  - Receiving and shipping
  - Put away and storage
  - Order picking
- Inventory management
- Transportation management
- Case studies

Global certification programs

SKF offers various global certification programs such as BINDT certified vibration analysis training, and different online courses for self-learning.

BINDT Accredited vibration analysis training from SKF

ISO 18436 Vibration Analysis Training: BINDT is an accredited certifying body in accordance with ISO/IEC 17024 offering personnel certification against criteria set out in international and European standards through the Personal Certification in Non Destructive Testing (PCN) Certification Scheme. BINDT has developed a programme for the certification of competence of personnel engaged in various condition monitoring disciplines in accordance with ISO 18436-1, including vibration analysis as specified in ISO 18436-2.

SKF is a global Accredited Training Organization (ATO), registered with the British Institute of Non Destructive Testing (BINDT) as per ISO 18436 requirements, which covers training related to condition monitoring and diagnostics of machines.

Senior members of SKF's training team sit on the Condition Monitoring and Diagnostic Technologies (COMADIT) Committee. In conjunction with PCN, COMADIT developed the course material and examinations in accordance with ISO 18436 to establish the first globally recognized qualifications in condition monitoring.

SKF Training Solutions is arranging a training program on 'BINDT Certified Training - Vibration Analysis - Category-1 at SKF College Pune. We look forward to receive nominations from you at the earliest. **Target group**: Application engineer, territory manager, condition monitoring engineer / technician, design engineer, maintenance engineer / manager / supervisor, quality engineer, technician / fitter, reliability engineer / manager / supervisor.

Methods / format: The seminar will be conducted through a mix of presentations and exercises.

Number of participants: 12 (Max.)

Note:

- The candidate has to pass the pre-certification examination to appear for BINDT exam.
- A certificate will be given by SKF Aberdeen UK on passing the pre-certification examination to be held one day prior to the BINDT exams.
- The candidates have an option of attending only the pre-certification examination or both the examination.
- No BINDT examination fee will be charged if you exercise the option of appearing only for the pre-certification exam.
- Course fees include lodging and boarding facility for the participants

BINDT Certified training on vibration analysis – Category 1

Course contents:

1. Course introduction
- SKF reliability systems
- SKF's AEO model for training
- Course objectives

2. Basics of condition based maintenance
- Principles of condition monitoring
- Maintenance philosophies
- The condition based maintenance cycle
- Condition monitoring decisions
- What machinery do I monitor?
- What type of monitoring do I perform on the selected machines?
- What measurements do I perform?
- How often do I measure?
- Root cause analysis and correction
- Review

3. Introduction to vibration • Introduction
- Principles of vibration-based condition monitoring
- Vibration spectrum
  - Relationship between velocity, acceleration and displacement
- Examples
- Choosing the right measurement parameter
- Defining FFT spectral parameters • Review

4. Vibration instrumentation
- Vibration measurement
- Sensor mounting methods
- Economics of monitoring systems
- Instrumentation for vibration condition monitoring
- Review

5. Machinery vibration characteristics
- The analysis process
- Analyzing typical machinery problems
- Analyzing application specific machinery problems
- Analyzing specific driving or driven units • Vibration acceptance levels • Review

6. Test planning and procedures
- Test planning
- Test procedures
- Tables

7. Equipment knowledge
- Introduction
- Electric motors: Generators and drives pumps
- Fans
- Steam turbines and gas turbines
- Compressors
- Reciprocating machinery
- Rolling mills
- Paper mills

- Machine tools
- Structures and piping
- Rolling element bearings
- Bearing features
- Bearing capabilities
- Journal bearings
- Gearing
- Belt driven machinery

Course information:
Duration: 5 days
Course fee: ` 70, 000/- plus GST (per participant)
Max. participation: 20

Course fees include lodging, boarding facility & examination fees

Course schedule:

Location	Date
Pune	2-6 September 2019, 9-13 March 2020

BINDT Certified training on vibration analysis – Category 2

Course contents:

Course introduction
- SKF reliability systems
- SKF's AEO model for training
- Course objectives

1. Basics of condition-based maintenance
- Principles of condition monitoring
- Maintenance philosophies
- The condition-based maintenance cycle
- Condition monitoring decisions
- What machinery do I monitor?
- What type of monitoring do I perform on the selected machines?
- What measurements do I perform?

2. Introduction to vibration 1
- Introduction
- Principles of vibration-based condition monitoring
- Vibration spectrum
- Relationship between velocity, acceleration and displacement
- Examples

3. Vibration instrumentation
- Vibration measurement
- Sensor mounting methods
- Economics of monitoring systems

4. Signal processing and data acquisition
- Introduction
- Signal processing and data acquisition
- What is FFT?
- Windowing
- FFT calculation
- Defining FFT spectral parameters

5. Machinery vibration characteristics
- Introduction
- The analysis processes
- Analyzing typical machinery problems
- Analyzing specific driving or driven units

6. Test planning and procedures • Test planning and procedures • Tables

7. Standards
- Introduction
- The ISO standards system
- Other standards for vibration monitoring and analysis

8. Establishing vibration measurement sites, parameters and alarms
- Vibration-based condition monitoring systems
- Overall vibration
- Setting up the measurement
- Identification of measurement points
- Setting measurement parameters
- Vibration measurement interval guidelines
- Review
- Types of vibration alarms
- Overall vibration
- Phase vector alarms
- Let the software do the work!

9. Equipment knowledge
- Introduction
- Electric motors, generators and drives
- Pumps
- Fans
- Steam turbines and gas turbines

- Compressors
- Reciprocating machinery
- Rolling mills
- Paper mills
- Machine tools
- Structures and piping
- Rolling element bearings
- Bearing features
- Bearing capabilities
- Journal bearings
- Gearing
- Belt driven machinery

Course information:
Duration: 5 days
Course fee: 80,000/- plus GST (per participant)
Max. participation: 20

Course fees include lodging, boarding facility & examination fees

Course schedule:

Location	Date
Pune	17-21 June 2019, 16-20 December 2019

SKF On-line learning courses

With strong trend of digitization and internet of Things, one needs to have the flexibility to learn as per his or her convenience.

To fulfill the new requirement of ‘On-line’ arena, SKF Training Solutions has range of E-Learning interactive training courses.

SKF self-learning tools are a one-stop solution for completing basic training in the field of condition monitoring, bearings, O&M of pumps, conveyors including dynamic analysis.

Target audience includes engineering at various levels and also students of mechanical and other engineering streams. This eliminates the need to take time off from work and to travel long distances to acquire knowledge, thereby reducing the costs considerably. They offer impartial assessment, facilitate you to update your competencies and acquire new skills at your will 24x7. These tools are periodically updated to reflect the current technology trends and practices. A ‘Right Trainer’ delivering consistently in quality. These tools are installed in the intranet (LAN) of the customer or are available in online version (Web based version), which can be accessed from our server.

We have released 22 titles and many more releases are planned for the near future.

1. Vibration analysis: (Level-I) Basics of vibration and preliminary analysis
2. Vibration analysis: (Level-II) Vibration analysis and problem diagnostics
3. Vibration analysis of industrial fans
4. Diagnostics of cement plant machinery
5. Dynamic balancing: (Level-I)
6. Basics of rolling element bearings
7. Mounting of rolling element bearings
8. Dismounting of rolling element bearings and failure analysis
9. Vibration analysis of rolling element bearings
10. Vibration analysis of plain bearings
11. Vibration analysis of electrical machines
12. Pumps-operation and maintenance
13. Operation and troubleshooting of material handling equipment
14. Analysis of resonance related problems
15. Dynamic analysis for equipment reliability and design optimization
16. Alignment-theory and practice
17. Diagnostics of sugar plant machinery
18. Diagnostics of power plant machinery
19. Diagnostics of paper plant machinery
20. Oil and grease analysis
21. Diagnostics of oil rig machinery
22. Diagnostics of automotive car industry machinery

Demo Link: http://www.self-learning-tool.com/sltdemo/demo.html

1 One day programs

SKF offers various one day programs such as fundamentals of bearing maintenance, practical mounting and dismounting of bearing, fundamentals of bearing lubrication, vibration analysis – fundamentals, Seals for rotary and reciprocating applications, predictive and preventive maintenance and machine tool maintenance. These programs will help participants gain knowledge about various fields in a single day.

One day programs

Fundamentals of bearing maintenance
- Basics of rolling element bearings
- Bearing selection criteria
- Fundamentals of lubrication
- Mounting and dismounting of bearings
- Bearing storage and handling
- Maintenance tips
- Bearing care: Do's and Don'ts

Practical mounting and dismounting of bearing
- Bearings and their types
- Selection of fits and tolerance
- Principles of mounting and dismounting bearings
- Demo of mounting and dismounting
- Hands on practice
- Maintenance tips
- Do's and Don'ts

Fundamentals of bearing lubrication
- Lubrication theory
- Why lubricate?
- How a lubricant works
- Selecting lubricants
- Lubricating intervals and available
- Sealing methods
- Contamination and cleanliness

Vibration analysis - fundamentals • Maintenance philosophy • What is vibration?
- Vibration instruments, sensors and their application
- Acceptance standards for different equipment
- Introduction to spectrum analysis
- Machinery fault diagnostics

Seals for rotary and reciprocating applications
- General industrial and catalogue shaft seals
- Radial lip shaft seals
- Choosing an elastomer material
- Shaft and bore recommendations
- Reciprocating in seals:
  a. ROD b. Piston
  c. Wiper d. O Rings

Predictive and Preventive Maintenance
- Concept of Maintenance
- Reliability, availability, maintainability
- Maintenance KPIs like MTBF, MTTR
- Basics of 'Condition Based maintenance'
- Different technologies used (vibration, oil, thermography, ultrasonic, stroboscopy etc)
- Importance of trending
- Basics of Preventive maintenance
- Advantages and disadvantages of intensive PM
- Group exercise

Machine tool maintenance Part 1: Precision bearing basics
- Function of precision bearings
- Fundamentals of precision bearings
- Proper care, handling and storage

Part 2: Spindles
- Spindle types
- Do's and don'ts
- Basic condition monitoring
- Design criteria
- Cleanliness
- Dis-assembly
- Mounting and locating

Basics of hydraulics
- Theory of hydraulics
- Pumps
- Hydraulic symbols
- Hydraulic fluids
- Cylinders
- Trouble shooting
- Reservoir systems
- Accumulators
- Case studies
- Hydraulic equipment

Training programs-– Schedule for April 2019 to March 2020

Residential Training Programs

Programme details	Location	Date	Course fees (`)
Vibration Analysis Level 2	Pune	16-18 April 2019	39,600
Root cause bearing damage analysis	Pune	16-17 May, 2019	26,400
Vibration Analysis Level 1	Pune	6-7 June, 2019	26,400
BINDT ISO Vibration analysis Cat2	Pune	17-21June, 2019	80,000
Bearing Maintenance Technology	Pune	17-19 July, 2019	39,600
Vibration Analysis Level 2	Pune	20-22 Aug, 2019	39,600
BINDT ISO Vibration analysis Cat1	Pune	2-6 Sept, 2019	70,000
Root cause bearing damage analysis	Pune	26-27 Sept, 2019	26,400
Reliability centered maintenance	Pune	15-16 Oct'19	28,000
Bearing Maintenance Technology	Pune	16-18 Oct, 2019	39,600
Vibration Analysis Level 1	Pune	24-25 Oct, 2019	26,400
Field lubrication analysis Cat-1	Pune	11-12 Nov'19	26,000
Vibration Analysis Level 2	Pune	27-29 Nov, 2019	39,600
Reliability centered maintenance	Pune	9-10 Dec'19	28,000
BINDT ISO Vibration Analysis Cat2	Pune	16-20 Dec, 2019	80,000
Vibration Analysis Level 1	Pune	9-10 Jan, 2020	26,400
Bearing Maintenance Technology	Pune	22-24 Jan, 2020	39,600
Field lubrication analysis Cat-1	Pune	23-24 Jan'19	26,000
Root cause bearing damage analysis	Pune	13-14 Feb, 2020	26,400
BINDT ISO Vibration analysis Cat1	Pune	9-13 Mar, 2020	70,000
Bearing Maintenance Technology	Pune	27-29 Mar, 2020	39,600

GST will be extra.

Non-residential Training Programs

Programme details	Location	Date	Course fees(INR)
Sealing Solutions	Madurai	11th April, 2019	9,000
Fundamentals of Bearing Maintenance	Guwahati	24th April, 2019	9,000
Fundamentals of Bearing Maintenance	Ludhiana	14th May, 2019	9,000
Alignment and Balancing	Jamshedpur	16-17 May, 2019	16,000
Fundamentals of Bearing Maintenance	Nagpur	May, 2019	9,000
Bearing Maintenance Technology	Bhubaneshwar	19-20 June,2019	16,000
Fundamentals of Bearing Maintenance	Rudrapur	25 June, 2019	9,000
Fundamentals of Bearing Maintenance	Vizag	28 June, 2019	9,000
Vibration analysis Fundamentals	Vizag	18 July, 2019	9,000
Sealing Solutions	Baddi	4 July, 2019	9,000
Fundamentals of Bearing Maintenance	Gwalior	12 July, 2019	9,000
Machine tool Fundamentals	Bengaluru	11 July, 2019	9,000
Vibration analysis Level-1	Chennai	7-8 Aug, 2019	16,000
Vibration analysis Fundamentals	Trichy	8 Aug, 2019	9,000
Alignment and Balancing	Hyderabad	28-29 Aug, 2019	16,000
Machine tool Fundamentals	Vadodara	17th Sept, 2019	9,000
Bearing Maintenance Technology	Jamshedpur	25-26 Sept,2019	16,000
Practical of bearing mounting and dismounting	Gwalior	15 Oct, 2019	9,000
Vibration analysis Fundamentals	Gwalior	16 Oct, 2019	9,000
Vibration analysis Level-1	Bhubaneshwar	23-24 Oct, 2019	16,000
Vibration analysis Fundamentals	Kolkata	5 Nov, 2019	9,000
Alignment and Balancing	Baddi	20-21 Nov, 2019	16,000
Bearing Maintenance Technology	Jamshedpur	18-19 Dec, 2019	16,000
Fundamentals of Bearing Maintenance	Coimbatore	21 Jan, 2020	9,000
Vibration analysis Fundamentals	Gandhi Dham	30 Jan, 2020	9,000

Sealing Solutions	Jamshedpur	13th Feb, 2020	9,000
Machine tool Fundamentals	Delhi	18th Feb, 2020	9,000
Alignment and Balancing	Gurgaon	25-26 Feb, 2020	16,000
Vibration analysis Fundamentals	Aurangabad	5 March, 2020	9,000
Vibration analysis Fundamentals	Surat	17th March, 2020	9,000
Fundamentals of Bearing Maintenance	Goa	21st March, 2020	9,000
Precision Shaft Alignment	Gwalior	June 3, 2019	9,000
		Gwalior	
Basics of hydraulics	Gwalior	15th Jul' 2019	9,000
Basics of rolling bearing lubrications	Gwalior	13 Aug'19	9,000
Vibration analysis Fundamentals	Gwalior	10th sep'19	9,000
Fundamentals of Bearing Maintenance	Gwalior	17th oct'19	9,000
Practical of bearing mounting and dismounting	Gwalior	12th Nov'19	9,000
Balancing theory	Gwalior	10th dec'19	9,000
Fundamentals of Bearing Maintenance	Indore	3rd May'19	9,000
Practical of bearing mounting and dismounting	Indore	4th May'19	9,000
Bearing Maintenance Technology	Indore	20th-21st Jun'19	16,000
Reliability centered maintenance	Indore	26th-27th Jul'19	28000
Vibration analysis Fundamentals	Indore	21st Aug'19	9,000
Precision Shaft Alignment	Indore	22nd Aug'19	9,000
Basics of hydraulics	Indore	20th sep'19	9,000
Basics of rolling bearing lubrications	Indore	17th Oct'19	9,000
Reliability centered maintenance	Indore	20th-21nd Nov'19	28000

Balancing theory	Indore	12th Dec'19	9,000
Practical of bearing mounting and dismounting	Bhubaneshwar	8th Nov'19	9,000
Precision Shaft Alignment	Bhubaneshwar	7th Jun'19	9,000
Basics of hydraulics	Bhubaneshwar	27th Aug'19	9,000
Basics of rolling bearing lubrications	Bhubaneshwar	28th Aug'19	9,000
Reliability centered maintenance	Bhubaneshwar	17th-18th Sep'19	28000
Balancing theory	Bhubaneshwar	15th Nov'19	9,000
Fundamentals of Bearing Maintenance	Jorhat/ Guwahati	9th May'19	9,000
Practical of bearing mounting and dismounting	Jorhat/ Guwahati	19th Aug'19	9,000
Precision Shaft Alignment	Jorhat/ Guwahati	3rd Jul'19	9,000
Balancing theory	Jorhat/ Guwahati	4Th Jul'19	9,000

GST will be extra.

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As of 2010 Lincoln Helios is part of SKF. Lincoln is a world leader in the manufacturing and sales of lubrication and pumping equipment for industry. Lincoln is an SKF Group brand.

You can also get in touch with SKF Authorized Industrial Distributor for more details.

Notes:

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