SKF Training Solutions Catalogue

Dates and locations preview













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This catalogue presents a wide range of reliability and maintenance training courses to support you in developing a successful training programme for your employees.

SKF training courses are based on over 100 years of experience and knowledge of Rotating Equipment Performance that is unmatched in the world. We have established close working partnerships with our clients. As a result, we have gained a unique insight into the processes and challenges that every major industry faces today.

In the current business environment, companies who really stand out are the ones that invest time and money in upgrading the skills of their employees and helping them maximise their potential. The same companies, who continually create opportunities for their employees to learn, will in time reap the rewards of their investment and stay ahead of their competition.

From an industry perspective, SKF training courses focus on enhancing the efficiency of plant machinery and equipment assets, which are integral to the production process in your business. Your employees will have the opportunity to learn from our experienced instructors, as they impart their knowledge on 'best in class' reliability maintenance practices.

Our partnerships with global certification councils along with educational institutions will provide your staff with key knowledge of emerging technologies in the field of engineering, specifically rotating equipment. With comprehensive training sessions that involve 'hands-on' learning experience, your employees will be equipped with SKF knowledge that enables them to become highly skilled technicians who will add value to your business.

We would like to extend our congratulations to you in making an important business decision – that is, to invest in training for your employees. We wish you an enjoyable learning experience!



Benefits of training

- Eliminates re-work and machinery problems to increase reliability and productivity
- Stops problems before they happen by addressing the root causes
- Enhances plant safety
- Increases employee productivity by teaching them advanced techniques to complete everyday tasks more efficiently
- Reduces the need for employee supervision

SKF training courses at a glance

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MS230 Maintenance strategy review	1 day	MS230	24
Condition-based maintenance			
WI201 Fundamentals of machine condition	2 days	WI201	25
WI202 Vibration analysis – Category 1	4 days	WI202	26
WI203 Vibration analysis – Category 2	5 days	WI203	27
Work control processes			
WC200 Planning and scheduling		WC200	28
WC230 Spares optimisation and inventory control	3 days	WC230	29
Proactive maintenance			
WE201 Bearing maintenance and technology	2 days	WE201	30
WE202 Bearings in rotating machinery applications	2 days	WE202	31
WE203 Lubrication in rotating bearings	1 day	WE203	31
WE204 Bearing damage analysis	1 day	WE204	32
WE215 Electric motor maintenance		WE215	33
WE240 Precision shaft alignment	1 day	WE240	34
WE250 Balancing theory and practice	2 days	WE250	34
Engineering			
LP200 Root cause analysis	2 days	LP200	35

Level 3: classroom courses	Duration	Course code	Page
Maintenance strategy			
MS300 Asset reliability improvement – Optimising asset management through maintenance strategy		MS300	38
MS331 SKF Reliability centred maintenance		MS331	40

Product and software courses		Course code	Page
Condition-based maintenance			
WICM232 SKF Microlog Inspector	2 days	WICM232	44
WICM 264 AX / WICM 265 GX Series Microlog	2 days	WICM264	44

How can I increase profitability through developing the skills of personnel?

SKF recommends 5 key steps
to successful training results

Step 1 Select the right work category
(Highest return on investment to an organisation)

Step 2 Training needs analysis
(Highest skills improvement opportunity for staff)

Step 3 Customised learning planning
(Quickest learning paths to required competency levels)

Step 4 Monitor performance improvement
(Through structured documented savings process)

Step 5 Work category re-assessment
(Continuous improvement and re-activation of skills cycle)

Step 1: Select the right work category

Best return on investment for an organisation

Drawing on years of SKF productivity experience, we can help you identify improvement opportunities that will yield positive bottom-line results, then suggest a strategy for implementing a programme to achieve them.

Our goal at SKF is to help you achieve maximum return on your reliability investment. The SKF Client Needs Analysis (CNA) is a performance benchmarking process with proven success in many industries.

The SKF Client Needs Analysis enables this understanding, combining our experience in reliability-focused maintenance with your knowledge of plant conditions. The goal is to provide useful, actionable information to help you focus on credible performance improvement opportunities.

Ideally the CNA will give you the opportunity to gain a clearer perspective on your reliability programme that is generally not possible while immersed in daily activities. Once the analysis is complete, you will receive a comprehensive report that includes:

- A summary of initial set-up details
- A spider chart illustrating a micro-level assessment for each question versus the maturity phases
- A maturity summary matrix showing a macro-level assessment for all four main facets of the asset efficiency optimisation process versus the maturity phases
- A ranked deviation chart illustrating your performance question-by-question versus your industry averages
- A detailed roadmap of recommendations for improving plant reliability

Moving toward a world-class facility starts with understanding where you stand today, and defining your objectives for the future.



Figure 1: The four phases of maintenance maturity.

Step 2: Training needs analysis

Clearly identified skills improvement opportunity for staff

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

The CNA-training 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.

CNA-training 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 eight areas of competency for improvement

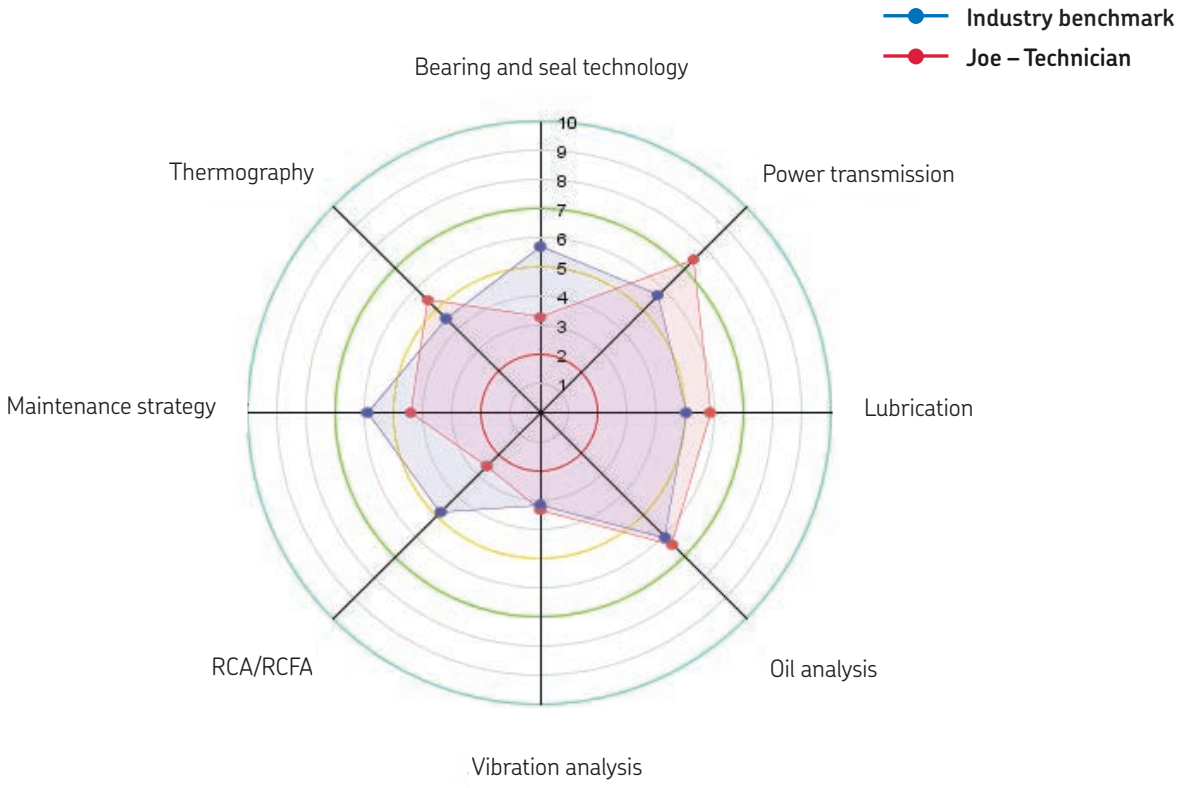
Opportunities for improvement are determined based on findings from the CNA-training. Typical improvements fall in the following areas:

1 Bearing and seal technology
2 Power transmission
3 Lubrication
4 Oil analysis
5 Vibration analysis
6 RCA/RCFA
7 Maintenance strategy
8 Thermography

A progressive and structured approach to training assessment

Skill gap analysis in all key areas of competency.The CNA-training needs analysis will give you a clearer perspective of your staff'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 below)
3 A skills summary matrix showing 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 training needs analysis



Step 3: Customised learning planning

Most effective learning paths to required competency levels

Maintenance and reliability engineering training

Course levels

The SKF training courses focus on disseminating maintenance related knowledge worldwide. It offers various programmes that are developed for easy application.

SKF offer 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.

E-learning

E-learning modules delivered online, 24/7, at SKF Knowledge Centre. Introductory courses familiarise students with basic terms and offer basic training on various subjects.

Intermediate classroom courses

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.



Course categories

While specific course topics vary widely. SKF training courses are organised around the following five facets of the SKF Asset Efficiency Optimisation (AEO) model:

Maintenance and reliability (MS)

Relates to methods and technologies used to develop a maintenance strategy. Courses emphasise a technically and financially sound maintenance strategy developed to match business goals.

Condition-based maintenance (CBM) (WI)

Relates to methods and technologies used to identify maintenance work. Course topics include condition monitoring, data collection, information integration and analysis.

Work control processes (WC)

Relates to methods and technologies used to control maintenance work. Course topics include maintenance planning and scheduling, standard job plans, spare parts alignment and inventory control.

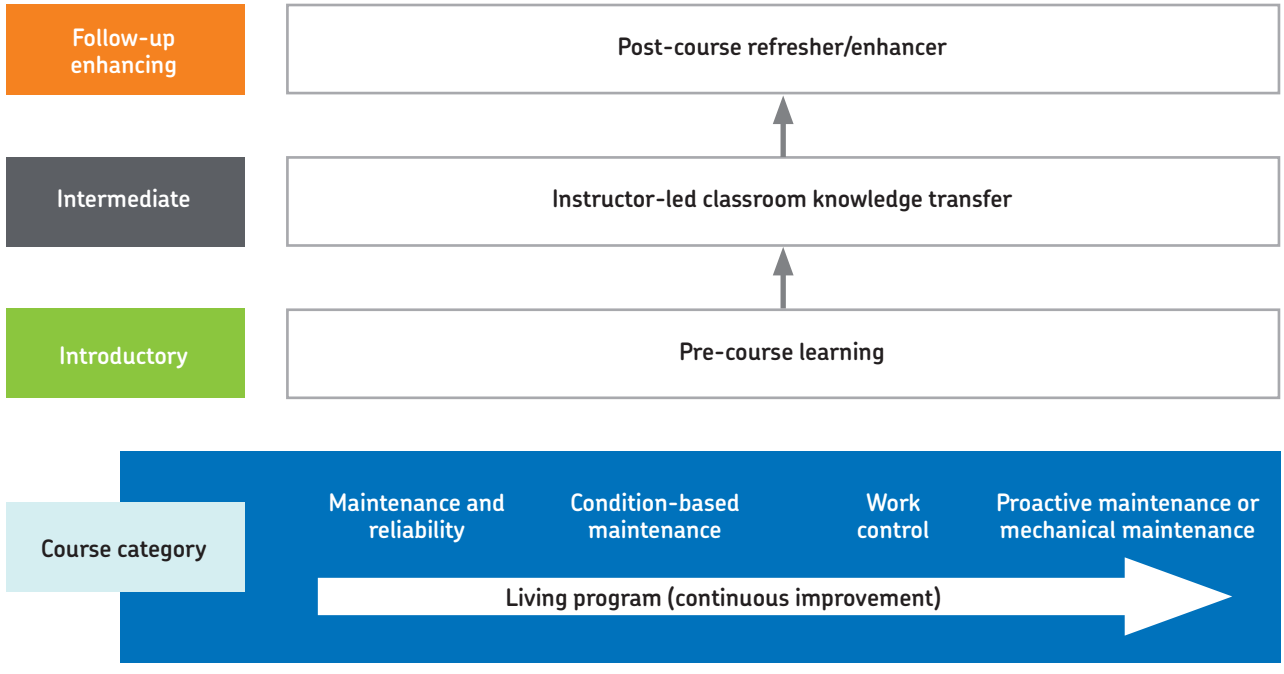
Proactive maintenance or mechanical maintenance (WE)

Relates to methods and technologies used to complete maintenance tasks. Course topics mainly include bearing maintenance, best practices in lubrication, precision alignment, dynamic balancing, and electric motor maintenance.

Engineering (LP)

Relates to Engineering or Engineering product, methods and technologies used to evaluate maintenance work and strategy, thereby 'closing the loop' and making maintenance a continual improvement process. Course topics include root cause analysis, reliability analysis, maintenance work feedback and performance management system, machine redesign, and technology upgrades.

The SKF development path
The blended learning approach to enhance training effectiveness



Step 4: Monitor performance improvement

Using a powerful new software programme, an SKF representative can show you how to track thousands or even hundreds of thousands of pounds of savings when knowledge gained from SKF training is implemented.

Solutions range from unique SKF training and products that reduce maintenance costs, to reliability services that solve recurring machine problems and virtually eliminate unplanned downtime. How can you have confidence in the forecasted savings? All this is achieved using your own resources – for materials, labour, downtime, energy costs, inventory, lubrication, replacement costs and more.



Step 5: Work category re-assessment

Continuous improvement and re-assessment of skills cycle

SKF recommends customers to re-assess the improvements made in different work categories after a period of 12–24 months. It also allows customers to identify new improvement opportunities, thereby closing the re-assessment loop and making this part of a continuous improvement process.

Key to success:

- A corporate culture willing to embrace the need for change
- Commitment to implementing new technologies with requisite financial, training and personnel resources
- Willingness to support processes for implementing cultural and technology changes

With SKF documented solution programme, a structured documented savings process, you spend minutes and can save thousands.



Can’t spare time for training? Get expert training at your premises

Advantages

Diverse range of courses

- Access to a full range of public programmes as well as programmes specifically tailored to meet your unique training needs

Convenience

- We arrange timing and delivery of courses to suit your schedule
- No travel time for delegates, thus providing time and cost savings – we come to you!

Experienced instructors

- Industry experts who are able to provide course participants with the full spectrum of maintenance and reliability based training

Cost effective

- Cost effective method for training groups of employees from your organisation

Team environment

- Training all employees at the same time promotes a team environment and provides immediate learning impact

On-site training would be an ideal option for you, if:

- You have 8 or more potential participants from your organisation
- You want to choose a date and location that suits you
- You want a trainer that understands your industry as welll as a program customised to meet your unique training needs
- You want to save time and money while getting the best training

Example of a SKF reliability training centre setup at the customer site

This technical training centre consists of the latest equipment and technology in bearing maintenance and condition monitoring fields. This provides a unique opportunity for employees to attend hands on training programmes and gain practical knowledge. The centre was set up in close collaboration between SKF and the client.





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Level 1: E-learning courses

Reliability knowledge delivered at your convenience

Our expanding range of e-learning courses covers a wide range of topics that you can learn from at your own pace and convenience.

A personal approach in an online environment

- The online e-learning courses from SKF are designed to introduce you to the subject and are considered the pre-requisites for the Intermediate level classroom courses
- Course participants will benefit from the opportunity to interact with a course tutor, via the 'ask the expert' functionality that is accessed from within each training module
- Each course is also accompanied by a dedicated support forum, allowing participants to interact with other learners and subject experts to further enhance their learning experience



Maintenance and reliability

MS100

Asset efficiency optimisation (AEO) basics

Course overview

This is an introductory course on maintenance optimisation. It considers the shortcomings of traditional maintenance and the benefits to be gained by replacing a cost focus with one of value and risk. Tools to assist with the optimisation exercise are briefly discussed and a work process is outlined to ensure that the optimised maintenance plan achieves the desired results.

MS113

Proactive reliability maintenance

Course overview

This course provides an introduction to proactive maintenance. It starts by exploring what is meant by the term "proactive maintenance" and goes on to discuss five of the primary tools that are typically used in its implementation. An introduction to the use of key performance indicators to monitor programme effectiveness is included, along with suggestions for a disciplined approach to operational review.

MS120

Operator driven reliability

Course overview

This course provides an introduction to the concept of Operator Driven Reliability (ODR). Its origins and terminology are explained, and the relationships between ODR and other maintenance methodologies is discussed. Factors that are key to successful implementation are also described.

MS130

Maintenance strategy review

Course overview

The course starts with an explanation of what a good maintenance strategy is meant to achieve. It then goes on to introduce Reliability Centred Maintenance (RCM) as a means of devising an effective strategy. Some variations on the classic RCM methodology are described, including SRCM and Risk Based maintenance. A cost-based approach to RCM is also outlined.

The course goes on to suggest how a maintenance strategy review project might be organised, and concludes by discussing the challenges that must be faced when implementing the results of such a project.

Condition-based maintenance

WI100

Vibration basics

Course overview

All machines obey Newton's universal laws of motion - from a small electric toothbrush through to a steam turbine in a power station. This introduction to vibration is therefore pertinent to any application or any segment. The session discusses the main cause of vibration (rotational forces) and the basic units of measurement.

WI130

Thermography basics

Course overview

The course provides an introduction to infra-red thermography and the associated background science . It explains, by way of 65 slides, many of the basic terms associated with the activity. Four main areas of industrial application are discussed, and practical examples from each of these areas are presented.

WI140

Lubrication management

Course overview

This course looks at the importance of good lubrication practices, and discusses 10 key facets that should be included in an effective lubrication management program.

PT01-MCA

SKF Machine Condition Advisor

Course overview

This course introduces the SKF Machine Condition Advisor, and its application in assessing the condition of rotating machinery. This involves three key tasks: Preparing and planning for measurements, collecting and recording readings, and evaluating the collected data to detect changes in machinery condition.

The basics

This lesson introduces the SKF Machine Condition Advisor as a predictive maintenance tool, and describes the three determinants of machine condition that it measures.

Instrument setup

In this lesson you will learn how to prepare the instrument for use, and how to configure the instrument to suit your own preferences.

Using the instrument

A virtual instrument is used to collect data from a typical fan. A simple data recording system is discussed, and instruction offered regarding the evaluation of the collected data.

Practical conditions

This lesson considers some of the practical difficulties that might be encountered in using the Advisor on real process machinery. Once again, a virtual instrument is used to collect data from a typical machine.

Work control processes

WC130

Spares inventory management and optimisation

Course overview

This course introduces you to the terminology, processes and activities associated with spare part and inventory management. The objective of this course is to increase your knowledge of basic spare parts and inventory management terminology, processes and principles with respect to your business goals. This course will help you to identify, structure and classify spare parts based on their criticality and re-order parameters, and help you to optimise your spare parts inventory.

Proactive maintenance

WE104

Bearing damage classification

Course overview

This course provides a basic introduction to the classification of damage in rolling bearings, according to standard ISO15243: 2004.

Understanding the root causes of bearing damage not only helps to ensure reliable bearing operation, but can also avoid costly downtime. While most bearings perform extremely well in their particular application, a bearing failure can have expensive consequences. Bearing failure modes are defined according to an ISO classification.

Classifying the damage in the right way helps to understand what has happened, to find the root cause and identify solutions to prevent recurrence of the problem. Armed with this information, it is possible to make sure that a bearing can perform flawlessly in its particular role. The ISO classification helps to improve communication, and avoid misunderstandings.

WE150

Balancing basics

Course overview

This course consists of two previously recorded webinars providing a basic introduction to balancing theory and practice:

- Part one provides the theory behind rotor balancing.
- Part two provides a practical demonstration of the procedure used to achieve a two plane balance of a rotor, from start to finish.

Engineering products

GRB001

Bearing basics

Course overview

On completion of this course the learner will be able to describe the three primary functions of a bearing, and to correctly identify the component parts of a standard bearing. The learner will also be able to list the most common bearing types and describe the main characteristics of each. He will also be able to explain eight factors that will affect the choice of bearing for a particular application. The learner will also be able to identify (with the aid of notes) the bearing type described by use of a basic designation, and to identify variants of a standard bearing design from information given in prefixes and suffixes applied to standard designations.

GRB003

Angular contact ball bearings

Course overview

Before taking the Angular contact ball bearings course, it is recommended that you have passed the Bearings basic course (GRB001), or have some prior knowledge about bearings.

Lessons focus on features and benefits of single row and double row angular contact ball bearings. Arrangement of universally matchable angular contact ball bearings is also discussed. Four-point contact ball bearings are also considered.

SKF angular contact ball bearings are used in many pump and compressor applications. Three examples of demanding applications are presented.

GRB005

Tapered roller bearings

Course overview

Before taking this course, you should pass the Bearing Basics course, or have some prior knowledge about bearings.
This course describes the construction and features of the SKF range of tapered roller bearings. Typical applications for these bearings are discussed, and the user will be able to identify an SKF tapered roller bearing by its designation.

GRB006

Deep groove ball bearings

Course overview

Before taking the Deep groove ball bearings course, it is recommended that you have passed the bearings basic course (GRB001), or have some prior knowledge about bearings.

In this course you will learn the basics about SKF deep groove ball bearings. The course consists of the following parts:

- An introduction to the course contents and an explanation of how the course works
- In this section you will learn about the features and benefits that set SKF deep groove ball bearings apart from the competition
- Product range and designations: Working with bearings on a daily basis, it is useful to recognise the most common bearing designations. In this lesson, you will learn about the SKF deep groove ball bearing range and the most relevant designations
- Applications: SKF deep groove ball bearings are successfully used in a wide range of applications. This lesson illustrates four different applications

GRL001

Lubrication

Course overview

Before taking the SKF lubrication course, it is recommended that you have passed the Bearing basics course, or have some prior knowledge about bearings. In this course you will learn about the physics of lubricants and the function of a lubricant within a bearing. The features and benefits of SKF standard bearing greases will be outlined, and you will be shown how to select grease for a specific application. The presentation also discusses the features and benefits of SKF automatic lubricator systems; SKF SYSTEM 24 and SKF Multipoint automatic lubricator.

GRPT01

Power transmission

Course overview

This course presents the basics of the SKF power transmission product range, covering timing belts, wedge belts, chains and couplings. The course includes discussion of various aspects of installation and maintenance of these products.

PT04–GPS

Revised standards for rolling bearing tolerances (ISO 199/ISO492)

Course overview

ISO 199 and ISO 492 are the basic standards for rolling bearing tolerances. They were revised to incorporate ISO GPS (Geometrical Product Specifications), enabling rolling bearings tolerances and the ISO GPS systems to be based on the same platform. The benefits are better descriptions of SKF products in terms of functions.

The revised standards give users more information about the interface between SKF products and the rest of their machinery in order to better integrate our products. Today you need to be an expert in bearings, to understand that for instance, the bearing diameter tolerances are given as a mid-range size, but with revised standards this tolerances are clearly described by using the common industrial language of ISO GPS. It functionally takes the interface between the bearing and another mechanical part into account. In detail the rolling bearing standards:

- ISO 199:2014 Rolling bearings – Thrust bearings – Geometrical product specifications (GPS) and tolerance values
- ISO 492:2014 Rolling bearings – Radial bearings – Geometrical product specifications (GPS) and tolerance values

are now aligned with general ISO GPS standards like ISO 1101 and ISO 5459. This e-learning includes information about the content of ISO 199:2014 and ISO 492:2014 and describes the changes to the former version.

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Level 2: Classroom courses

Intermediate, typically 2–3 days

Taught by SKF Instructor's these courses are a great way to learn or refresh your knowledge and skills. The courses are taught using a blended learning approach with a combination of classroom training and practical workshops to improve the overall learning effectiveness. Course topics relate to methods, technologies and best practices to develop, implement sustain precision and proactive maintenance practices in order help improve reliability and profitability.

The courses can also be customised to your own needs and delivered on-site at your facility.



Maintenance and reliability

MS230

Maintenance strategy review (MSR)

Introduction

Before we explore the technical details of strategy, we must know about each organization and what their issues are, why which issues matter to whom, and how the issues can be ordered into a plan. There must be a documented need to look at an existing maintenance strategy or create a new one for the right and unique business reasons.

Course objective

The course objectives are to ensure that each participant will:

- know if a review of strategy is required and why
- recognize the importance of data structure and content before you do any kind of strategy work
- understand the importance of identifying and categorizing assets
- understand that there are differing types of criticality at different levels for different purposes
- understand what will likely be involved in total to conduct the right analysis, but then what the implications are of making the strategy work
- recognize the commonalities and difference in possible strategies
- understand that the conduct of MSR has important implications to spares
- understand that certain classes of equipment require specialized approaches to strategy review (i.e., SCS > via SIL/IPF, etc.)

Duration

3 days

Course content

The purpose of this course is to make users aware of MSR and how we can apply it within our work. These are the topics:

Chapter 1: Conceptual models and business context
Chapter 2: Obtain a common understanding of terminology
Chapter 3: Standards, models, and excellence
Chapter 4: Understanding the current situation
Chapter 5: The essential link – failure and strategy
Chapter 6: What is strategy?
Chapter 7: Mutual understanding and readiness
Chapter 8: Can we conduct MSR? Now we know we need to
Chapter 9: A blend of MSR types
Chapter 10: How to implement well
Chapter 11: Performance management and measurement
Chapter 12: How MSR forms the basis for PdM and PRM programs

Who should attend

Maintenance, plant/facility engineering staff, rotating equipment engineers and maintenance supervisors, Managers at industrial plants, reliability engineers and those interested inrotating equipment performancesible for rotating equipment performance and reliability

Prerequisite

Physical attendance, including a number of enlight E-training modules, necessary reading of a balance of references to SKF @ptitude Exchange*, and external documents.

* On-line learning material at aptitudeexchange.com

Condition-based maintenance

WI201

Fundamentals of machine condition

Course objective

The course objective is to provide a practical approach to detecting and analysing common machinery problems using vibration monitoring and analysis.

Who should attend

Engineers and technicians whose responsibilities require them to be proficient in the setup and use of the SKF condition monitoring system; maintenance supervisors, predictive maintenance coordinators, reliability engineers, inspectors, shop supervisors, advanced mechanics, and millwrights who wish to become familiar with vibration monitoring and analysis.

Duration

2 days

Course content

Basic of vibration

- Time waveform analysis
- Amplitude vs. frequency
- Vibration – measurable characteristics
- Scale factors
- Measurements and units
- Displacement probe/eddy probe
- Multi-parameter monitoring
- Resonance
- Detection vs. analysis

Set up the vibration measurement

- Physical and database considerations
- Selecting the machinery
- Sensor location and mounting methods
- Setting Fmax

Alarm methods and setting alarms limits

- ISO guidelines
- Assessing overall vibration severity
- Spectral enveloping and bands
- Phase alarms
- Exception criteria

Spectral analysis and phase analysis

- Spectral analysis techniques and pattern recognition
- Sidebands
- Harmonics
- Waterfall plot
- Understanding phase

Vibration signal processing methods

- Enveloping
- SEE™ Technology
- HFD (high frequency detection)

Analyzing typical machinery problems

- Imbalance and misalignment
- Bent shaft
- Mechanical looseness
- Cocked bearing

Monitoring rolling bearings

- Why do bearings fail?
- Bearing failure stages
- Bearing defect frequencies
- Displaying fault frequencies

Vibration diagnostic tables

- ISO 10816 Vibration diagnostic table

WI202

Vibration analysis – Category 1

Course objective

- Operate portable instrumentation on pre-assigned or pre-programmed routes
- Acquire readings from permanently installed instrumentation
- Input results into a database and download sampling routes from a computer
- Conduct testing under steady-state operating conditions following predefined procedures
- Compare overall or single value vibration measurements against pre-established alert settings
- Verify integrity of collected data; prevent or control poor data
- Evaluate and report test results in accordance with instructions; highlight areas for further investigation.

Who should attend

Plant personnel requiring an introduction to vibration analysis techniques and technologies used in a condition predictive maintenance program, including maintenance supervisors, rotating machinery engineers, predictive maintenance technicians and coordinators, reliability engineers, and multi-skilled mechanics.

Duration

4 days

Course content

Introduction to predictive maintenance and machine vibration

- Definitions of PdM and condition monitoring
- How PdM compares with other maintenance systems
- Goals of a PdM programme
- Critical role of vibration analysis in Pdm

Machine vibration – basic theory and analysis:

- Characteristics of vibration (frequency and period)
- Amplitude – magnitude of vibratory motion
- RMS peak and peak-to-peak conversions
- Frequency – how often the vibration occurs
- Phase – how one machine component or support frame vibrates relative to another
- Basics of a time waveform versus a spectrum

Preparation for data collection:

- Types of vibration transducers
- Choosing the optimum transducer location
- Effects of transducer mounting on it's performance, accuracy and repeatability
- Choosing the optimum FFT data collector

Introduction to data collection systems:

- Setting up a PdM database (plants, trains, machines and points)
- Choosing the proper parameter (vibration, acceleration, velocity and/or displacement)
- Selecting the proper parameters
- Setting up the optimum PdM routes and schedules
- Printing out the proper reports after uploading
- Introduction to problem recognition:
- How to recognise abnormal conditions
- How to identify hardware versus software faults
- How to identify good versus bad data
- How to detect common machine problems

WI203

Vibration analysis – Category 2

Course objective

- Select the appropriate machinery vibration measurement technique
- Set up instruments for basic resolution of amplitude, frequency and time
- Perform basic vibration analysis of machinery and components such as shafts, bearings, gears, fans, pumps, and motors using spectrum analysis
- Maintain a database of results and trends
- Perform basic (single channel) impact tests to determine natural frequencies
- Classify, interpret and evaluate the test results (including acceptance tests) in accordance with applicable specifications and standards
- Recommend corrective actions
- Recommend the use of alternative condition monitoring (CM) technologies with an understanding of the principles of all four CM technologies

Duration

5 days

Who should attend

Plant personnel requiring a basic understanding of analytical methodologies used to determine machinery conditions for improvement of predictive maintenance program results; including maintenance supervisors, rotating machinery engineers, predictive maintenance coordinators, reliability engineers, and advanced mechanics and technicians.

Course content

Common machinery malfunctions are discussed, including basic guidelines for the best detection tools for each machinery problem, and key signs to be aware of. Malfunctions and common pitfalls are demonstrated and real-world vibration analysis case histories are shared.

1 What is vibration and how can it be used to evaluate machinery condition:
   - Frequency, a time waveform, phase, an FFT spectrum (signature)
   - Displacement, velocity, and acceleration
   - RMS, peak, and peak-to-peak amplitude
   - How to know when vibration is too high
2 Vibration sensors and their application
3 Vibration and detection by various instruments. Analog vs digital methods
4 High frequency detection (HFD) and alarm levels at various speeds
5 Vibration analysis and how it is used to evaluate machine operating condition:
   - Mass unbalance, eccentric rotors, bent shafts, and misalignment
   - Mechanical looseness, improper component fit, soft foot, and belt drive problems
   - Rolling bearing problem detection using vibration spectrum analysis
   - Gear wear problem detection
   - Electrical problems within induction motors
   - Balance resonances, detection, and effects on machinery
6 Vibration alarms, spectral band alarms, and optimum frequency ranges
7 Common pitfalls in making everyday vibration measurements and the effect on detection and diagnosis of machinery problems
8 Time waveform and converting to an FFT spectrum
9 Predictive maintenance programs
10 Real-world case histories for problems found within the illustrated vibration diagnostic chart

Work control processes

WC200

Planning and scheduling

Course objective

After completing the course, participants will be able to:

- Understand the importance and impact of planning and scheduling
- Learn and apply planning and scheduling principles and methodology
- Derive planning and scheduling work flow models understand planning roles and relationships
- Understand the benefits of performance measurement
- Understand the components of a data driven maintenance job plan
- Understand when to create a maintenance job plan
- Demonstrate the knowledge and skills necessary to write a data driven maintenance job plan

Course content

The objective of this training is to give the basic principles for planning and scheduling of maintenance work. The participants will understand the necessity of planned work and its effect on interest groups and on maintenance measurements.

Course topic

The course contains the following topics:

- Roles and responsibilities
- Work flow
- Error notification
- Prioritising of work orders
- Planning
  - Theory
  - The process
  - Standard work
  - Planning and reservation of material
- Scheduling
  - Theory
  - The process
  - Handling of backlogue
- Efficient planning and scheduling meetings
- Shutdown planning
- Improvements
- Follow up and key performance indicators (KPIs)

Who should attend

Personnel from Production, Operations, Maintenance, Planners, Schedulers and personnel responsible for Spare Parts. Inventory control, purchasing, reliability and maintenance engineering, logistic support, quality, production and warehouse management.

WC230

Spares optimisation and inventory control

Course objective

The course objectives are to provide participants with a sound knowledge and understanding of:

- Spare parts and inventory management processes and principles
- Basic spare parts and inventory management terminology
- The importance and relations of spare parts and inventory management with respect to business goals
- Identifying, structure, and classifying spare parts on their criticality, (re)order parameters, and other spare parts characteristics
- Applying basic analysis techniques to optimise the availability of spares and cost-effectively handle obsolete spares
- Key institutes and reference material on spare parts and inventory management

Duration

3 days

Course content

SKF spare part management and inventory optimisation training has been developed to support SKF customers (industrial end-users), improving their bottom line results. This course will consist of the following modules:

Module 0: Introduction
Module 1: Spare parts management (SPM)
Module 2: Maintenance and spare parts strategy
Module 3: MRO inventory management
Module 3-A: MRO inventory management – Basics
Module 3-B: MRO inventory management – work processes and CMMS
Module 4: Obsolete management

Case studies

The purpose of the case studies is to provide participants with an opportunity to apply the gained knowledge and understanding in practice.

Who should attend

Engineers, supervisors and managers from the following functions: Inventory control, purchasing, reliability and maintenance engineering, logistic support, quality, production and warehouse management.

Proactive maintenance

WE201

Bearing maintenance and technology

Course objective

At the end of this course students will be able to perform routine bearing checks during operation and non operation, identify bearing requirements for replacement or installation, and remove and install bearings.

Who should attend

Service, maintenance, machine repair, plant/facility, rotating equipment engineers, reliability engineers, mechanics and maintenance supervisors of an industrial plant, OEM facility, public utility using roller bearings and related equipment.

Duration

2 days

Course content

Basics of bearings and their applications

- Rolling bearing theory
- Anti-friction bearing types and applications
- Plain bearing types and applications
- Meaning of 'L 10 Life' and 'Service Life'
- Application of fits and tolerances

Fundamentals of lubrication

- How bearing lubrication works
- The importance of selecting the proper lubricant for an application
- Maximise bearing life through understanding of proper lubricating principles and functions
- How much and how often to lubricate rolling bearings

Seal types and application

- Contact seals, non-contact seals
- Housing seal types

Principles of mounting and dismounting bearings

- Cylindrical seating
- Tapered seating
- Adapter and withdrawal sleeves
- Cold and hot mounting and dismounting
- Mounting and dismounting using oil injection
- Principles of mounting plain bearings

Introduction to bearing failures and their causes

- Identify and interpret actual bearing failures

Practical mounting and dismounting of bearings

- Preparation for mounting and dismounting
- Checking the components
- Mounting and dismounting tools

WE202

Bearings in rotating machinery applications

Course objective

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

Duration

2 days

Course content

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

Who should attend

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

WE203

Lubrication in rotating bearings

Course objective

At the end of this course, students will be able to:

- Understand the fundamentals of lubricant formulation and mechanisms
- Understand different types of lubricants
- Understand the need for the correct lubricant for the application – oil, grease or solid lubricant
- Understand how speed, temperature, load, influence the selection of the correct lubricant
- Understand why viscosity is important
- Awareness of the consequences of incorrect selection and application
- Understand how their actions can result in cost savings to their organisations due to enhanced lubrication practices

Duration

1 day

Course content

Principles of lubrication

- Lubrication regimes
- Importance of viscosity
- Additives – types and uses, including solid lubricants

Oil lubrication

- Base oil types
- Application methods – bath, circulation, ring-oil, splash, spray
- Oil change intervals

Grease lubrication

- Grease composition
- Thickener types and compatibility
- Consistency – NLGI
- Application methods – manual, automatic systems
- Relubrication intervals

Synthetic lubricants

- Effects of temperature, load, vibration and speed on lubricant selection
- Lubrication selection for bearings, gears, and industrial, vehicle and mining applications
- Bearing failure causes
- Lubrication software tools

Storage and handling of lubricants

- Oils and greases
- Contamination

Who should attend

Maintenance personnel and engineers responsible for bearing lubrication, lubricant specification and lubrication system planning and design.

WE204

Bearing damage analysis

Course objective

On completion students will be able to provide background and methodology for analysing failed and damaged bearings and their components. Students will be able to uncover the true root causes of bearing damage and failures, and reduced service life.

Duration

1 day

Course content

Bearing knowledge

- Understand common bearing terminology
- Learn basic knowledge required for bearing damage analysis

Load path patterns in bearings

- Understand bearing operation
- Understand normal load patterns
- Discuss abnormal load patterns and their causes

Methodology

- Understand why bearings fail in service
- Understand the concept of root cause failure

Analysis (RCFA)

- Perform bearing damage analysis including reporting ISO 15243 – bearing failure modes and classification
- Understand the main points that the ISO classification is based upon
- Understand the terminology and visual appearance of failure modes hands-on - analysis of sample bearing failures
- Inspect a series of sample bearing failures and report the findings
- Group discussion on the cases
- Use SKF Bearing Inspector
- We encourage participants to bring a failed bearing (and machine history) from their plant, to analyse during the workshop sessions

Monitoring bearings

Condition monitoring of rolling element bearings using vibration analysis can prevent a majority of problems and failures.

Who should attend

Service, maintenance, machine repair, or plant/facility engineering staff of an industrial plant, OEM facility, institution public utility or commercial building which uses rolling bearings and related equipment, Rotating equipment engineers, reliability engineers, millwrights, mechanics, and maintenance supervisors.

WE215

Electric motor maintenance

Course objective

Electric motors are among the highest in reliability incident reports. How parts are installed, lubricated, handled, stored, aligned, and maintained is critical.
1 An effective implementation of electrical motor
2 Students will have an appreciation and understanding to perform optimal diagnoses and repairs
3 Students will learn the techniques and obtain valuable information to detect motor problems prior to failure, avoiding costly downtime

Course content

Motor Maintenance
- Motor parts overview
- Repair overview

Electrical testing
- Predictive maintenance motor diagnostics
- Electrical motor tests
  - Winding Resistance
  - Meg-ohm Test
  - Polarisation Index (PI)
  - Hipot Test
  - Surge Test
- Turn to turn failure

Bearing arrangements
- Bearing basics: electric motor bearings
- Locating / non-locating bearing arrangements
- Thermal growth
- Horizontal arrangement
  - medium size motors
  - small motors
- Bearing arrangements: belt drive motors
- Vertical electric motors
- Variable speed motors

Motor teardown and bearing dismounting
- Identifying bearings for replacement
- Bearing dismounting methods
  - Hydraulic puller
  - Arbor press
- Post dismounting procedures

Shaft and housing fits
- Checking fit integrity

Motor assembly and bearing mounting
- Cold mounting
- Induction heating

Lubrication
- Bearing life
- Grease selection and procedures
- Contamination
- Typical lubrication mistakes
- Grease ducts and fittings

Final tests and delivery procedures
- Post motor service: testing
- Mechanical integrity
  - Foot flatness
  - Vibration levels
  - Motor temperature
  - Rotor balancing
  - Shaft run out
- Circulating currents
- Preparing motor for transportation and storage

Bearing failure analysis
- Why bearings fail
- Wear path patterns
- Examining failure samples
- Benefits of failure analysis
- Practical motor overhaul
- Hands-on practical exercise

Who should attend

Condition Monitoring Engineer / Technician, Electrical Manager / Supervisor, Engineering Manager / Supervisor, Mechanical Maintenance Engineer / Manager / Supervisor, Operations Manager / Supervisor, Quality Engineer, Reliability Engineer / Supervisor / Manager.

WE240

Precision shaft alignment

Course objective

Reading material*

– Fixturlaser_01 Shaft Alignment: Introduction
– Fixturlaser_06 Shaft Alignment: Pre-Alignment

Duration

1 day

Course content

Up to 50% of this course consists of guided hands-on activities. It is suggested that participants bring their instruments to the course

Overview

- Review of shaft alignment fundamentals
- Advantages, disadvantages and sources of error associated with various alignment methods
- Describing and documenting shaft offset and angular misalignment condition
- Pre-alignment procedures
- Review the three major phases of alignment
- Review of dial indicator alignment methods
- Laser alignment systems overview

Fundamental horizontal machine alignment processes

- Measuring and entering the dimensions
- Obtaining measurements
- Interpreting results
- Making moves/adjustments
- Alignment completion

Dealing with alignment challenges

- Base-bound and bolt-bound conditions
- Dynamic movement
- Identify general types of soft foot and how to detect and correct soft foot conditions
- Effects of thermal growth on the alignment process and machine operation

Who should attend

Maintenance, engineering, technical support and management personnel whose job functions involve alignment of rotating machinery

- Appropriate for those who align machines and those who detect, investigate and resolve premature machinery failure due to misalignment.

WE250

Balancing theory and practice

Course objective

At the end of this course, students will be able to determine the most appropriate procedure to be applied to selected balancing situations, identify the main causes of unbalanced equipment, and understand the procedures for operating the balancing equipment.

- Understanding principles of balancing
- Selecting the most appropriate procedure to be applied to selected balancing situations
- Understanding procedures for setting up the component to be balanced
- Understanding procedures for operating the balancing equipment
- Understanding procedures for recording out of balance readings
- Learn methods of rigid and flexible rotation balancing
- Understanding techniques of single and multiple plane balancing
- Learn procedures for balancing imbalanced equipment

Duration

2 days

Course content

1 Check balance

- Principles of equipment balance testing are understood
- Most appropriate balancing check procedure is selected
- Component is set up correctly and to site/ manufacturer's procedure for balance check
- Balance/imbalanced is determined and compared to specification requirements
- Out of balance readings are recorded to prescribed procedures

2 Balance equipment

- Principles and methods of rigid and/or flexible rotation balancing are understood
- Techniques of single and/or multi-plane balancing are used appropriate to application
- Equipment is balanced utilising correct procedures
- Practical methods with basic instruments
- Examples of advanced techniques used by analysts
- Proactive and precision tolerances
- The effects of assembly on rotor balance

Who should attend

Application engineer, condition monitoring engineer, electrical engineer / fitter / manager / technician, engineering draftsman / manager / supervisor, mechanical maintenance engineer / lubrication fitter, operations manager / supervisor, planning manager, quality engineer, reliability engineer.

Continuous improvement

LP200

Root cause analysis

Course objective

- Understand the importance of RCA in delivering internal services and its role in relation to other tools, notably vibration diagnostics, bearing failure diagnostics and maintenance strategy
- Become confident in building 'why?' trees and the 7 steps of a root cause study
- Be equipped with tools to assist in resolving complex problems and thinking laterally to fully explore possible causes of a problem

Duration

2 days

Course content

- Working from existing corporate information systems to capture events and incidents where RCA will be beneficial:
  - Machinery failures resulting in actual or potential loss of plant output
  - Machinery failure that represents large unbudgeted repair cost
  - Safety, health or environmental breaches
  - Repetitive failures that collectively represent an excessive maintenance cost
  - Non conformance in maintenance strategy
- Prioritise incidents and formally launch the RCA study by defining the problem
- Collect and preserve evidence to provide evidence on the incident
- Expose the causes of the incident by building a 'why?' tree. In general each incident will have three types of root cause:
  - Technical causes – the immediate technical cause of the failure
  - Human causes – actions or inactions that triggered the technical causes
  - Organisational causes – organisation factors that lie behind the human cause

The key elements of an RCA process discussed include

- Propose practical actions that will address the root cause of the incident and develop a business case for management approval of the resulting actions
- Following management approval, assign actions for implementation and track actions to completion
- Measure the performance of the RCA program through appropriate KPIs

Who should attend

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

- Managers, technicians, rotating equipment engineers, reliability engineers, mechanics, and maintenance supervisors.
- Those interested in rolling bearing and rotating equipment performance.



Level 3: classroom courses

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Level 3: Classroom courses

Advanced, typically 3–5 days

Courses in this section provide an advanced study giving personnel the knowledge and skills to their organisations to deliver as best as possible the desired functioning, performance, and reliability of their assets. These courses are delivered by subject matter experts and more suited to Engineers and Manager's.



Maintenance strategy

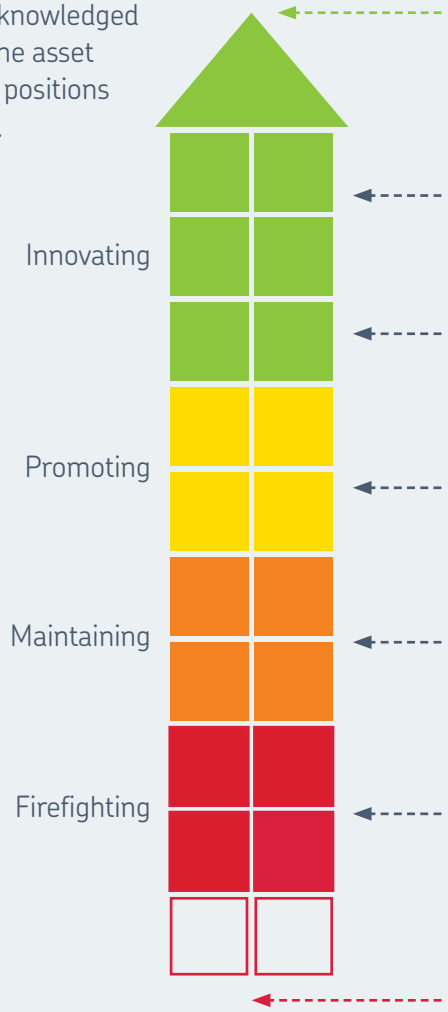
MS300

Asset reliability improvement – Optimising asset management through maintenance strategy

Course objective

- To understand the spectrum of asset management
- Ability to assess the situation, maturity and needs of an organisation
- Knowledge and understanding in describing and judging rotating equipment degradation processes, failure and maintenance behaviour and various assessment techniques
- Ability to identify, structure and classify the required data recording, reporting on performance losses, evaluation and identification of reliability killers and selecting appropriate equipment functions for improvement by the customer CMMS
- Ability to perform analysis of root causes by appropriate techniques and methods
- Ability to facilitate root cause analysis, to develop the appropriate organisation, to involve the various functions for continuous equipment reliability improvement and to identify and structure the data required by the customer CMMS
- Knowledge about developing and optimising maintenance programs, operations and process control procedures and the development of modifications, Maintenance Engineering (ME) methods, asset knowledge and machine maintenance techniques
- Gain a working knowledge of maintenance strategy. Review techniques focused upon Reliability Centred Maintenance (RCM), optimise spare parts requirements, develop, improve or implement the Management of Change (MoC) process

While companies have acknowledged the need to progress up the asset effeciency ladder, current positions vary broadly, as expected.



Course content

Important Topics Covered

What is Asset Management?
Brief discussion on system and process thinking
Review of course learning objectives and course flow
Review of participants expectations
- Detail any exclusions
- Detail any change of emphasis flow

Explanation of the use of module feedback sheets
Case studies will be developed during the course

Module 1

Conceptual Models and Business Context
- Asset Management
- Maintenance Management and Maintenance Engineering (differences)
- Understanding basic terms reliability, availability, maintainability and safety
- Initial maintenance strategy review
- Life Cycle Management
- Interaction (of Asset Management) with other concepts – tero-technology, ILS and TPM
- Required knowledge of business drivers and opportunities
- Getting started – how and what to assess
- Why we need and use different types of assessments
- Role of assessments
- Case Study – A review of a completed client needs analysis
- Module 2
  Degradation, Failure and Maintenance Behaviour
- System breakdown structure (asset register), recording, reporting of performance and production losses and function
- Loss categories, events and causation – codification (IS014224)
- Understanding failure modes, rates, characteristics
- Maintenance strategies (run-to-failure, preventive, predictive) and work types (maintenance modification, investment) (ISO standards)
- CMMS requirements (data structure and content)
- Case Study – Define failure and maintenance types, inclusion
- CMMS

Module 3

Evaluation and Selection of Reliability Killers
- Business Criticality
- Screening process
- Pattern recognition and causation
- Data required
- Evaluation of losses
- Selecting attractive reliability killers for analysis
- Case Study – Simple criticality analysis

Who should attend

Maintenance, Plant/Facility Engineering staff, rotating equipment Engineers, Maintenance Supervisors, Managers at industrial plants, Reliability Engineers and those interested in rotating equipment performance.

MS331

SKF Reliability centred maintenance

Course objective

Upon completion of this course students will have the knowledge to:

- Know how to describe the SRCM process flow
- Recognise the importance of data structure and content before you do any kind of strategy work
- Understand the importance of identifying and categorising assets
- Understand criticality and the Failure Modes and Effects Analysis (FMEA) approach in SRCM
- Understand how to develop a SRCM analysis, as well as the implications of making the strategy work
- Understand why to conduct a task comparison
- Understand methods needed for SRCM implementation
- Recognise what a living programme is

Course content

Module 1: Setting the scene for SRCM

- (Introduction)
- Asset Management Support Tool (AMST) module structure

Module 2: Conceptual models and businesscontext

- Understand where SRCM came from
- Discuss the difference between SRCM and RCM
- Understand the RCM standard
- Discuss SRCM compliance with the RCM standard

Module 3: SRCM methodology

- Effectively discuss the SRCM process model
- Determine what data is required prior to SRCM

Module 4: Identify what is important

- How to select which system to analyse
- Determine system boundaries
- Understand the importance of the functional failure analysis (FFA)

Module 5: Define what should be done

- Know what dominant failure causes are
- How to prescribe maintenance to critical assets
- How to decide run-to-failure (RTF)maintenance
- Know when design changes are required

Module 6: Change the existing program

- Understand the importance of task comparison
- How to implement well
- What feedback is

Module 7: Project steps

- Understand typical SRCM project steps
- Understand what takes place during a SRCM review meeting

Who should attend

Maintenance, Plant/Facility Engineering staff, rotating equipment Engineers, Maintenance Supervisors, Managers at industrial plants, Reliability Engineers and those interested in rotating equipment performance.



Product and Software training	Page
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Product and software courses

SmartStart courses

Smartstart is an onsite startup service that focuses on a specific product and is designed to get that product up and running, your employees trained and your program implemented quickly and effectively. The training takes the form of coaching and mentoring rather than classroom instruction. The Instructor will offer guidance in applicable product and or database optimisation and functionality.



Condition-based maintenance

WICM232

SKF Microlog Inspector

Course description

Course topics are organised according to the steps necessary to operate the product.

- Setup and utilise the MARLIN/Microlog Inspector Condition Detector (MCD) as a stand alone probe to monitor overall machinery and bearing vibration and temperature
- Installation and use of MARLIN/Microlog Inspector Quick Connect studs
- Set up and utilise the MARLIN/Microlog Inspector data manager to monitor and record machinery condition and plant process data
- Use the MARLIN/Microlog Inspector data manager to review data in the field
- Build a MARLIN/Microlog Inspector measurement database using SKF @ptitude

Analyst Inspector software

- Transfer data between SKF @ptitude Analyst Inspector and the MARLIN/Microlog Inspector data manager
- Display and generate trends and reports SKF continues to add new MARLIN/Microlog Inspector hardware and software platforms. The SmartStart program will be tailored to match customer specific systems and requirements.



WICM 264 / WICM 265

WICM 264 AX / WICM 265 GX Series Microlog

Course description

Course topics are organised according to the steps necessary to set up a portable monitoring system and to operate the SKF Microlog AX/ GX SKF @ptitude Analyst software product.

Condition monitoring training topics

- Condition-based maintenance program overview
- guidelines for implementing a portable condition monitoring Program – practical guidelines for implementing a portable condition monitoring program
- Introduction to vibration analysis – discuss the advantages of various vibration signal processing techniques to isolate and detect specific machinery faults (e.g., acceleration enveloping signal processing for early detection of bearing faults)

SKF product training topics

- Set up default properties on the SKF @ptitude Analyst software
- Learn to navigate the software using its menus, dialogs, windows, hierarchy, terminology and workspaces,
- How to create a database of vibration measurements
- Download and upload measurements between SKF software and the AX/GX Microlog data collection device
- How to set up default properties in the AX/GX Microlog
- How to operate the AX/GX Microlog data collector/analyser to collect both route and off-route measurements
- Generate graphic plots and reports for analysing measured machinery condition (both software and AX/GX Microlog)
- Advanced AX/GX Microlog application modules, multiple channel measurements, FRF measurements and balancing.



Industry Certification

British Institute of Non-Destructive Testing (BINDT)
Certified Vibration Analysis Category I & II

BINDT's 'aim is to promote and advance the science and practice of non-destructive (NDT), condition monitoring, diagnostic engineering and all other materials and quality testing disciplines.' (http://www.bindt.org/)

SKF is the only organization approved to conduct Vibration Analysis level I & II in India.

To learn more about our BINDT certification programme, please contact us on **skfmkt@skf.com**.

ICML – The International Council for Machinery Lubrication

ICML is a vendor-neutral, not-for-profit organization that offers skill certification testing for Machinery Lubrication Technicians (MLT), Machine Lubricant Analysts (MLA) and Laboratory Lubricant Analysts (LLA).

ICML's MLA and LLA certification programs are in accordance with and were the basis for, ISO 18436-4 and ISO 18436-5, respectively.

To learn more about our BINDT certification programme, please contact us on **skfmkt@skf.com**.

Condition Monitoring Certification Board (CMCB)

CMCB – with direct support from the Australian Institute of Non Destructive Testing (AINDT) – was established to oversee the operation of the "condition monitoring certification scheme" and the policies and procedures in accordance with international requirements.

SKF is pleased to be associated with CMCB & AINDT to facilitate coordinated efforts in providing knowledge share with emerging technologies in condition monitoring. Senior members from SKF have worked in close conjunction with the world's leading accreditation bodies, contributing many years worth of our own condition monitoring experience in the process.

Many of our condition monitoring training courses conform to ISO18436. SKF has been approved as an Authorised Training Body by CMSkills in accordance with ISO18436/3. The CMSkills examination, combined with training, experience and verifiable competency requirements, will lead to the successful applicant achieving certification to ISO18436 in the relevant methodology. Such certification will be recognised by leading authorities on condition monitoring throughout the world.

The CMCB certification program is available only in Australia.

Box Hill Institute of TAFE

Box Hill Institute is a recognised leader in the provision of high-quality, costeffective education and training services both in Australia and overseas. SKF Reliability Systems have established a partnering agreement with Box Hill Institute for the delivery, assessment and quality assurance of courses offered by SKF as per the national units of competency. This is to ensure that the quality of our training courses are of the high standards set by the Australian Skills Quality Authority (ASQA) .

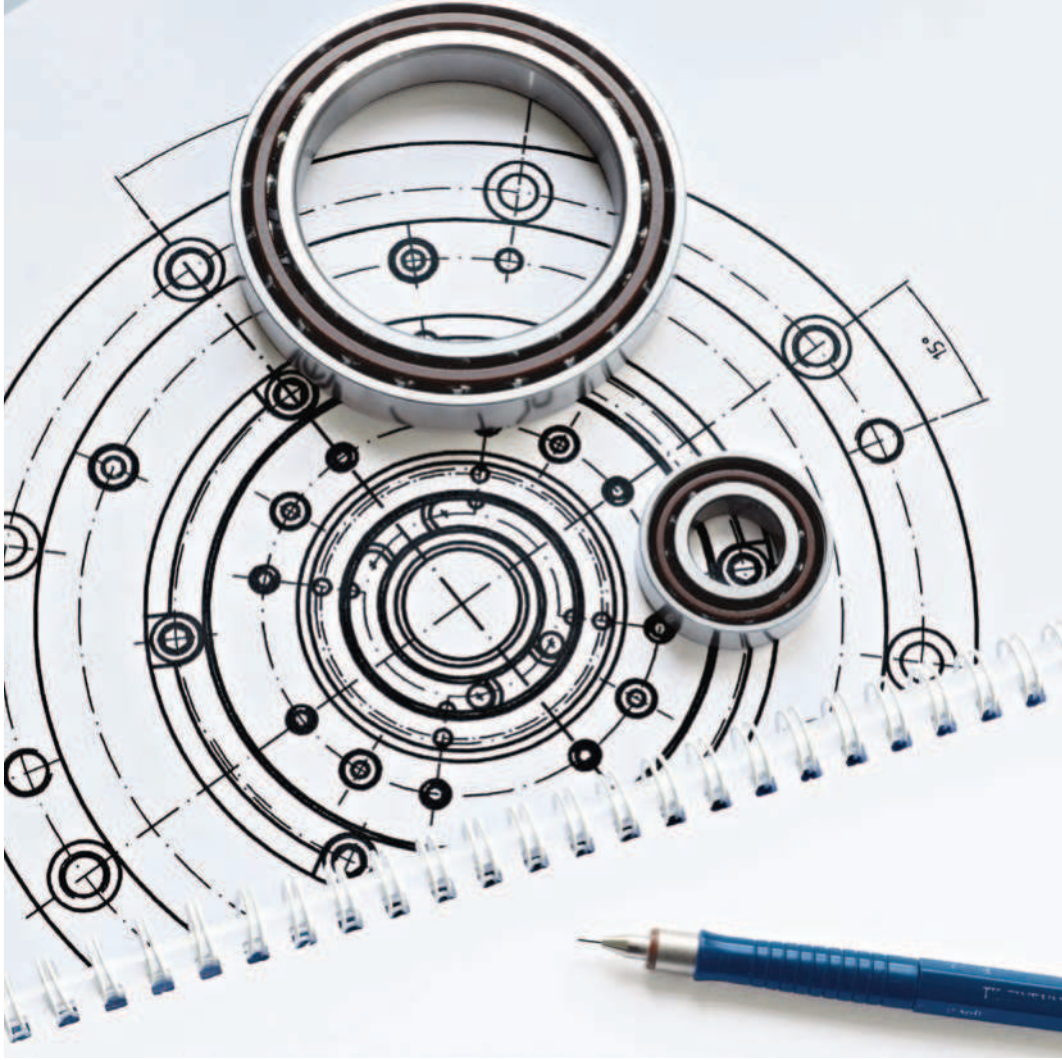
This partnership benefits participants in gaining latest industry knowledge and assessments and accreditation in a selection of units of competency that furthers their learning program and qualification.

To learn more about our TAFE Accreditation programme, please contact us on **+61 9269 0763** or via **rs.marketing@skf.com**.

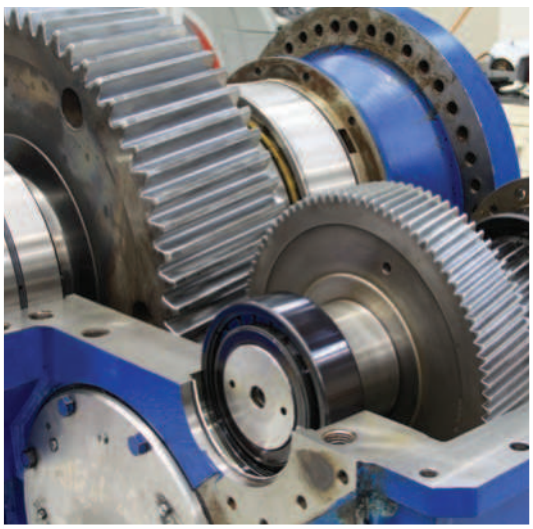
The TAFE Accreditation program is available only in Australia.



SKF training courses are based on over 100 years of experience and knowledge of rotating equipment performance that is unmatched in the world.







We have established close working partnerships with our clients. As a result, we have gained a unique insight into the processes and challenges that every major industry faces today.

We would like to extend our congratulations to you in making an important business decision – that is, to invest in training for your employees. We wish you an enjoyable learning experience!



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™ SmartStart is a trademark of the SKF Group.

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