SKF TRAINING SOLUTIONS

2019 SCHEDULE FOR CANADA

2019

Public training locations

- English language course
- French language course

We can come to you, contact us at: training.canada@skf.com to setup a training in your city.

SKF

In today's ever evolving corporate world, there is a need for highest possible quality at the lowest cost to achieve maximum machine reliability.

At SKF we provide the world-class experience which is exactly what the employees need to further advance their careers and increase efficiency & productivity.

Our training courses have been developed with over 100 years of experience and knowledge of rotating equipment reliability that is unmatched in the world. Our close working relationships with equipment owners and designers have given us an intimate understanding of the processes and challenges specific to every major industry within the continuously evolving global community.

Our complete 2019 portfolio encompasses e-learning, classroom training, hands-on-workshops, onsite mentoring, instrument and software specific training and complete overall training needs analysis.

SKF Training Solutions, SKF Canada Limited is recognized by the Society for Maintenance & Reliability Professionals (SMRP) as an approved provider of continuing education and training aligned with key subject areas related to reliability and physical asset management.

For 2019, we are continuing to tour the country, offering our most popular courses at several new locations. If your location is not listed, please contact SKF so we can add your location to 2020 or possibly make arrangements for 2019.

Certifications:

CMVA
Canadian Machinery Vibration Association

ICML
International Council for Machinery Lubrication

Commission des partenaires du marché du travail
Québec

SMRP
APPROVED PROVIDER

TABLE OF CONTENTS

SKF Training Solutions portfolio

SKF Training Solutions offers training in a variety of formats covering topics in Maintenance & repair, Design & engineering, Condition monitoring and Asset Management.

- **E-learning**

  Introductory classes held online covering a variety of topics
- **Best practices classes**

  Introductory or refresher classes held at your facility
- **Private courses**

  Intermediate multi-day courses held at your facility
- **Public courses**

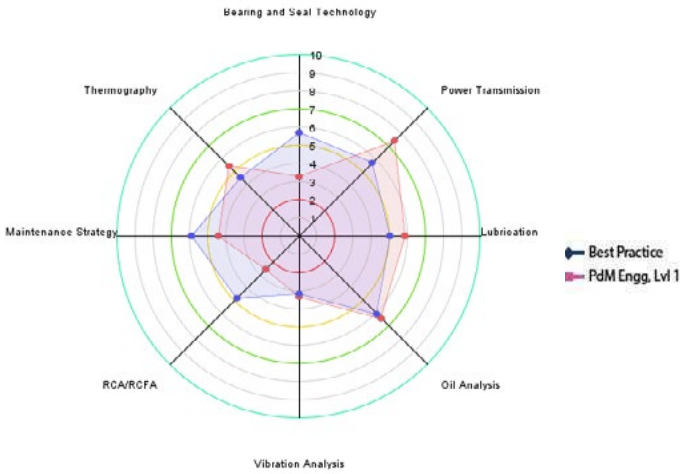
  Intermediate to advanced multi-day courses held at your facility.

  These classes are associated with a certification program or SKF qualification testing.

Training needs analysis

Highest skills improvement opportunity for staff

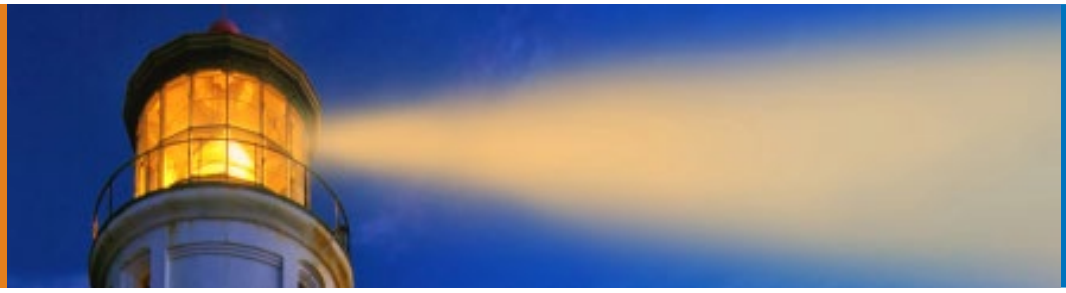
If you don't know where to start, we can help. SKF has developed programs to assess the maintenance skills of your team and identify individual strengths and weaknesses. Together we then create a program that fits your needs and gives the best return on your investment in your people.



The SKF Client Needs Analysis – 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.

These assessments are conducted with individuals or a group of your staff from the following work areas:

- Mechanical maintenance
- Reliability & Condition monitoring
- Engineering
- Planning & scheduling



Equip.

Encourage.

Empower.

E-learning web-based training

Maintenance strategy courses

MS 100 AEO basics

MS 101 Assessment basics

MS 113 Proactive reliability maintenance

MS 120 Operator driven reliability

MS 130 Maintenance strategy review

Work identification courses

WI 100 Vibration basics

WI 130 Thermography basics

WI 140 Lubrication analysis basics

Work control course

WC 130 Spare parts management

Work execution courses

WE 104 Bearing damage analysis

WE 150 Balancing basics

General reference courses

GRB 001 Bearing basics

GRB 002 Spherical roller bearings

GRB 003 Angular contact ball bearings

GRB 004 CARB® toroidal roller bearings

GRB 005 Tapered roller bearings

GRB 006 Deep groove ball bearings

GRL 001 Lubrication basics

Product course

PT01 MCA SKF Machine condition advisor

Best practice classes

Hands on and accredited training to ensure best practices from your team!

These single day demonstration sessions are designed as introductory or refresher classes addressing important topics covering reliability of bearing systems and rotating equipment. Suitable for anyone working with, interested in or responsible for improving the reliability of rotating equipment.

Maximum group size per day is 10. Tuition is $2,500 per day.

Highly effective classes
Customized to your teams needs

BP101 Bearing fundamentals

- Bearing history, design and function
- Bearing lubrication basics
- Associated components
- Bearing fits
- Mechanical, hydraulic and thermal mounting techniques

BP102 Bearing lubrication basics

- Function of a lubricant
- Composition and definitions
- Grease lubrication
- Oil lubrication
- Maintenance & planning of lubrication

BP103 Bearing damage analysis

- Key factors affecting bearing performance
- Normal & abnormal load zones
- Identifying visual bearing damage characteristics
- ISO failure mode definitions

BP104 Shaft alignment basics

- Consequences of poor alignment
- Definitions & identification procedures
- Soft foot
- Rough and precision alignment methods
- Problem solving

BP105 Fundamentals of condition based monitoring

- Condition based monitoring
- Vibration basics
- Measurement techniques
- Spectrum analysis
- Establishing measurements & alarms

BP106 Fundamentals of thermography

- Introduction to basic infrared theory
- Testing considerations
- Technical application of thermography
- Limit standards review
- Interpreting results

Get the complete package

Bearing specialist program

Here's a package of training programs designed to develop you into a highly knowledgable bearing system maintenance specialist.

Step 4 – Advanced bearing system courses

- WE204 Root cause bearing failure analysis
- WE241 Precision maintenance skills
  Laser shaft alignment and rotor balancing

Step 3 – Bearing system maintenance classes

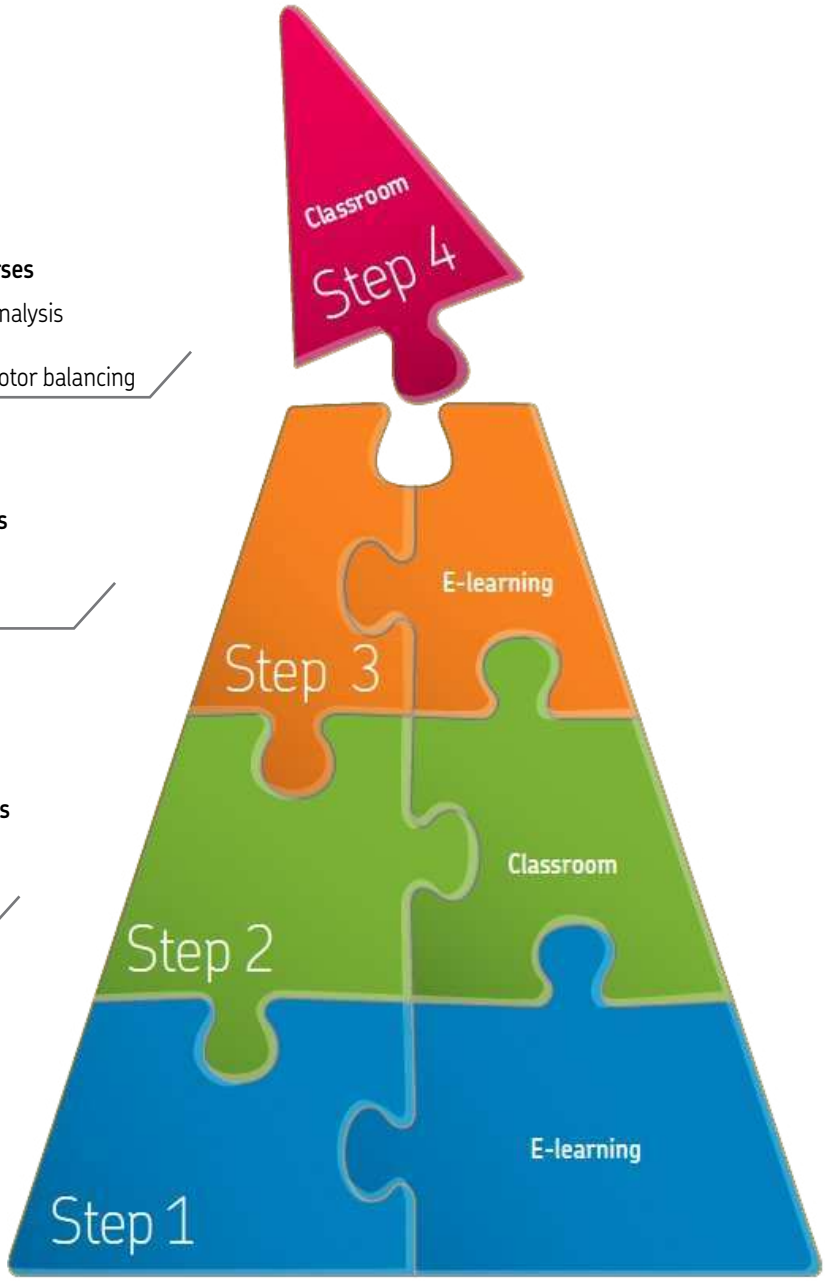
- WI130 Thermography basics
- WE150 Balancing basics

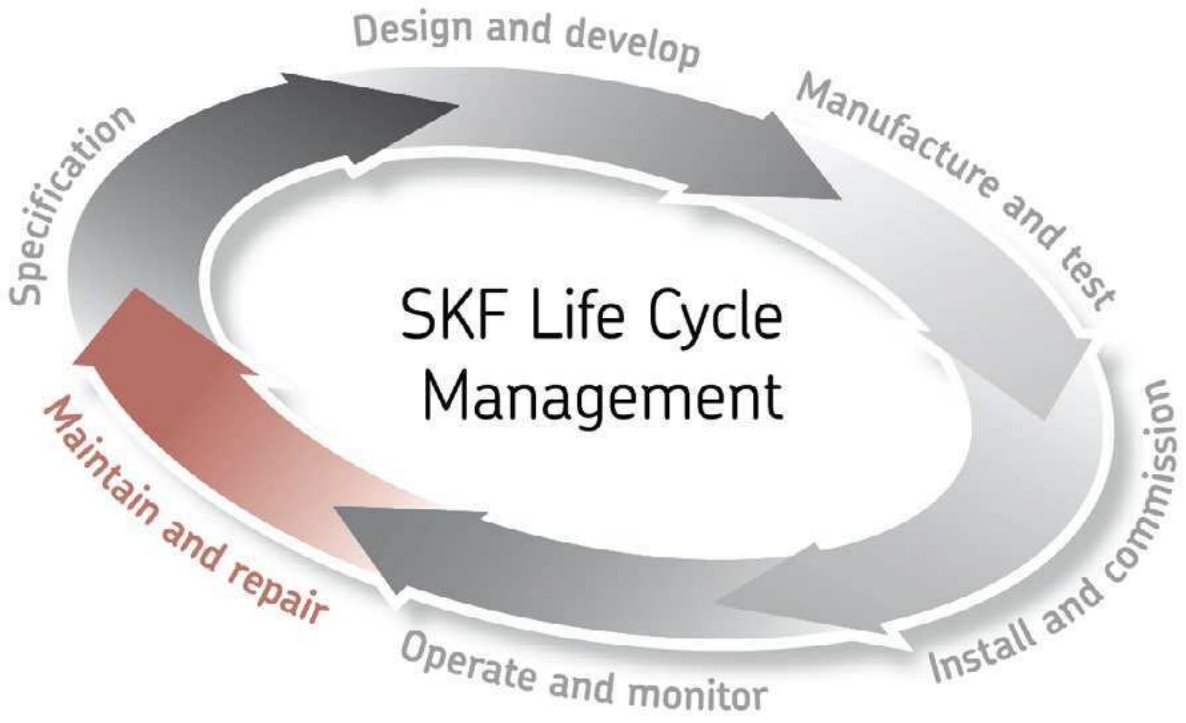
Step 2 – Intermediate bearing maintenance courses

- WE201 Bearing maintenance & technology
- WI241 Machine lubrication technician
  analyst - Level 1

Step 1 - Introduction to bearing system components

- GRB001 Bearing basics
- GRL001 Lubrication basics





Maintain and repair

Supporting machinery maintenance and operations with a range of tools and service

We offer training in the latest precision maintenance and condition monitoring practices.

SKF specialists can even supplement your workforce with expert, hands-on services.

SKF remanufacturing services can restore bearings, housings and gearboxes to full working specifications, avoiding costly replacement.

Our spare parts optimization and management services can help provide for the availability of replacement parts while minimizing the cost of stock.

Our offers include:

- Maintenance and alignment tools and services
- Electric motor testing and certified repair shops
- Spindle reconditioning
- Remanufacturing services
- Root cause failure analysis
- Spare parts optimization and management
- On-line and on-site training
- Global supply of replacement bearings, housings, seals and lubricants

WE201 - Bearing maintenance and technology

Recommended for

Millwrights, mechanics, service technicians, engineering technicians, maintenance or repair personnel working with rotating equipment.

Course objective

The course will teach the attendee to improve the service life of rolling bearings and thereby reliability of rotating machinery. Focus is on fundamental bearing technology, importance of proper handling, appropriate methods of mounting and dismounting as well as bearing system maintenance and care. This is done through a combination of hands-on training, audio-visuals, lectures and discussion opportunities.

Pre-Study

GRB001 Bearing Basics

GRB006 Deep groove ball bearings

RB02002 Bearing Basics

Post Study

GS04012 Bearing Dismounting Methods

RB02017 Tips for Bearing Mounting

RMI03003 Proper Bearing Handling & Storage

Public course:

2 days, $995 per participant

Private course:

2 days, $6,995 for 10 people

Correspondence course: please inquire

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Specific topics include

Bearing basics

- Types
- Components
- Terminology
- Designation system
- Materials
- Quality
- Housings and associated components

Bearing maintenance

- Review of maintenance styles
- Selection of shaft and housing fits
- Proper bearing mounting and dismounting tools and techniques (mechanical, thermal and hydraulic)
- Bearing system assembly and installation
- Maintenance mistakes
- Laser shaft alignment basics

Factors affecting bearing performance

- Bearing loads
- Bearing capacities
- Design life versus service life
- Seal designs
- Environmental considerations

Fundamentals of bearing lubrication

- Primary function of a lubricant
- How bearing lubrication works
- Grease lubrication
- Oil lubrication
- Relubrication practices

Public course 2019 schedule

Calgary	February 6-7
Kingston	March 5-6
Vancouver	March 14-15
Regina	April 3-4
Edmonton	April 16-17
Calgary	May 28-29
Montreal	June 4-5 (F)
Sarnia	June 19-20
Edmonton	June 26-27
Edmonton	August 7-8
Winnipeg	August 20-21
Toronto	September 10-11
Saskatoon	September 17-18
Kingston	September 24-25
Toronto	October 9-10
Calgary	October 16-17
Montreal	October 22-23 (F)
Calgary	November 13-14
Edmonton	November 21-22

WC200 - Maintenance planning and scheduling

Recommended for

All planners and maintenance staff involved in planning and scheduling.

Course objective

With this course, students will learn how to leverage labor resources (increase efficiency and productivity with fewer resources), how to reduce reactive maintenance and how to minimize efficiency losses resulting from disconnects with the production schedule, priority changes, emergency work, and outages. An effective planning and scheduling system will enable your maintenance personnel to increase productivity.

Pre-Study

WC130 Spare Parts management

RB02028 Spare Parts Management

GS03005 Inventory Management

Post Study

MB04021 Calculating Wrench Time

RB04012 Maintenance Planning & Scheduling Fundamentals

MB03013 Planning, Scheduling and Work Orders

Public course:

2 days, $995 per participant

Correspondance course: please inquire

Specific topics include

Planning fundamentals and principles

- Theory
- Process
- Standard work
- Planning and reserving material

Scheduling fundamentals and principles

- Theory
- Process
- Handling backlog
- Scheduling effective meetings

Work closeout

- Follow up and key performance indicators
- Continuous improvement projects

Schedule compliance and metrics

- Wrench time
- Error notification

Shutdown process

Work administration tools

Public course 2019 schedule

- Calgary October 29-30

WE202 - Reliability in rotating equipment

Recommended for

Reliability and maintenance personnel responsible for the successful installation, operation, maintenance and monitoring of existing rotating equipment.

Course objective

The course focuses on the four most common types of rotating equipment: pumps, motors, fans and gearboxes. The students learn world class techniques for installation, maintenance, troubleshooting and repair that can be translated to all types of rotating equipment.

Private course: please inquire

Specific topics include

Industrial pumps

- Bearing system design overview
- Pump operation and terminology
- Controlling thrust loads
- ANSI versus API design standards
- Troubleshooting

Industrial motors

- Bearing system design overview
- Factors affecting bearing performance
- Installation
- Troubleshooting
- Condition monitoring

Industrial gearboxes

- Bearing system design overview
- Coupling machinery: alignment overview
- Proper oil lubrication
- Monitoring and inspection

Industrial fans

- Bearing system design overview
- Fan performance
- Installation of pillow block mounted bearings
- Lubrication and relubrication of open bearings
- Detecting and correcting imbalance

Private course available

- Please inquire | training.canada@skf.com

WE203 - Lubrication of Rolling Element Bearings

Recommended for

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

Course objective

Upon completion, students will be able to evaluate and select appropriate lubricants for a wide variety of rolling element bearing applications.

Pre-Study

GRL001 Lubrication basics

WI140 Lubrication analysis basics

RB04001 Lubrication management

Post Study

JM02016 Lubricant Monitoring and Analysis

EVOL04 no2 | p26
Grease life in lubricated for life deep groove ball bearings

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Public course: $495/participant

Private course: 1 day

10 people, $3795/day

Correspondence course: please inquire

Specific topics include

Lubrication fundamentals

- Functions of lubrication
- Basic expression
- Lubricant additives and their effects
- Avoiding surface damage in bearings

Grease lubrication

- Grease functions and properties
- Grease delivery and metering systems
- Selection of grease type: choosing the right grade, base, stiffness, and oil for your application
- Compute grease intervals and relubrication amounts

Oil lubrication

- Choosing the right lubricant: oil and grease quality standards and testing
- Effects of cleanliness and contamination
- Using the new life theory to predict the effects of contamination on bearings
- Effects of water ingress
- Effective use of filtration and choosing the right filter
- Change-out intervals
- Bearing housing design concepts
- Comparison of oil delivery methods
- Determining oil flow rates

Applying lubricants

- Determining lubrication quantities and intervals
- Hands-on lubrication and relubrication procedures for pillow blocks, ball bearings, roller bear-ings, sealed and shielded bearings
- Electric motor relubrication

Common errors/troubleshooting

- Over-greasing, under-greasing, and mixing greases
- Corrective actions

Public course 2019 schedule

Toronto	May 14
Calgary	October 22
Edmonton	October 24

WE241 - Precision maintenance skills
Laser shaft alignment and rotor balancing

Recommended for

Maintenance personnel responsible for machine installations and troubleshooting.

Course objective

This hands-on course aims to teach maintenance personnel the fundamentals of laser shaft alignment techniques and rotor balancing techniques and given the time to practice these skills under the guidance of a SKF Service Engineer.

Pre-Study

WI100 Vibration basics

WE140 Shaft Alignment Basics

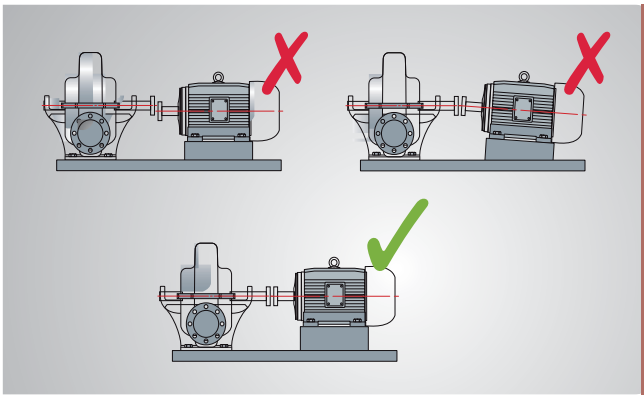
RB02008 Shaft Couplings

Post Study

MS100 Proactive reliability maintenance

GS04007 Belt alignment

RB02023 Roller chain drives



Public course: $995/participant

Private course onsite: $6995

Correspondence course: please inquire

Specific topics include

Proactive shaft alignment

- Machinery alignment and misalignment
- Alignment tolerances
- Soft foot
- Laser alignment techniques

Hands-on workshop rotor balancing

Understanding imbalance

- Identifying imbalance
- Single plane (static) balancing
- Single plane (dynamic) balancing

Hands-on workshop

Public course 2019 schedule

- Calgary March 20-22
- Toronto December 3-5

WC230 - Spare parts management & inventory control

Recommended for

Plant personnel involved with industrial maintenance inventory control, planning, scheduling and purchasing.

Course objective

This course provides participants with a sound knowledge and understanding of spares and inventory management in the maintenance, repair and operations environment.

Pre-Study

WC130 Spare Parts Management

RB02028 Spare Parts Management

GS03005 Inventory Management

Post Study

MB03013 Planning, scheduling and work orders

RB01005 Tools management

RB01004 Supply chain management

Public course: 2 days, $995 per participant

Correspondence course: please inquire

Specific topics include

Spare parts and inventory management processes and principles

- Terminology
- Relationship to business goals

Identifying, structuring and classifying criticality

- Order and reorder parameters
- Optimizing availability
- Handling obsolete parts

Spare parts management

Maintenance and spare parts strategy

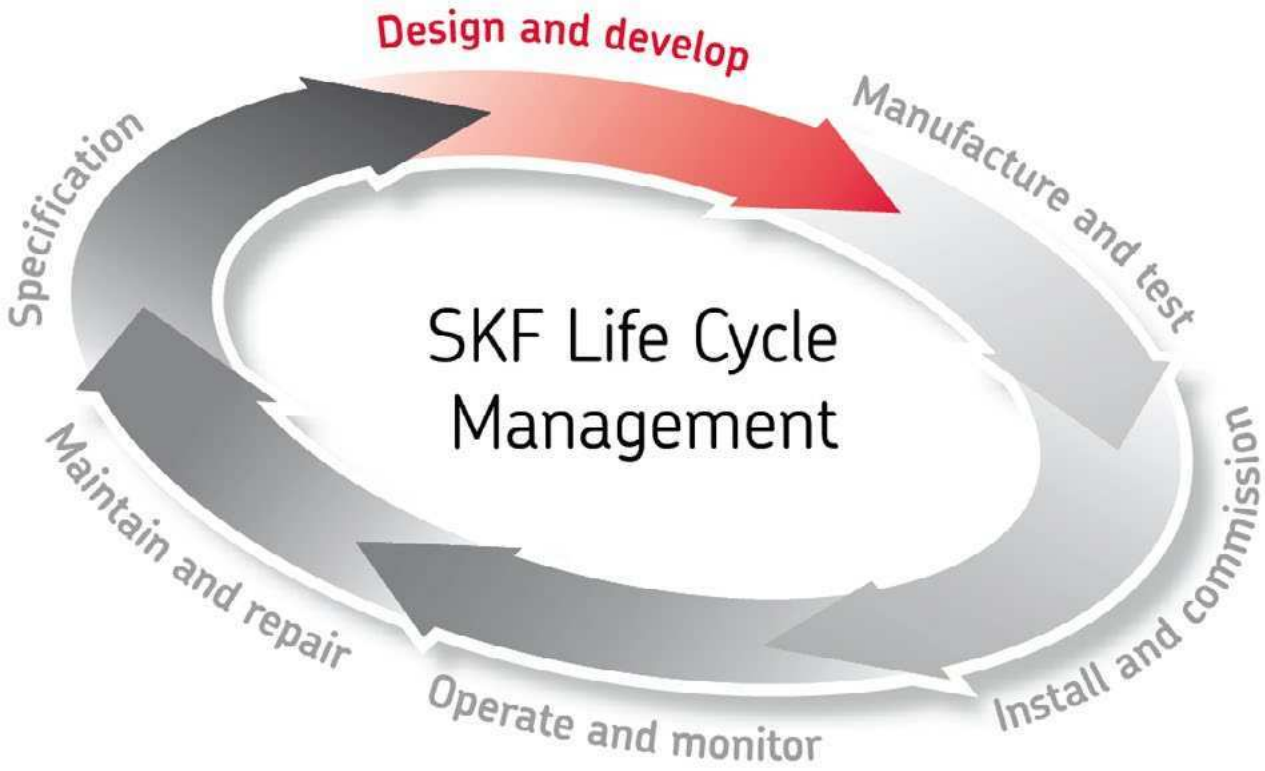
MRO inventory management

- Basics
- Work processes
- CMMS

Case studies

Public course 2019 schedule

- Calgary January 29-30
- Calgary March 12-13
- Calgary November 19-20



Design and develop

Solving application challenges with a systems approach to designs

Our proprietary 3-D modelling software simulates the interaction of machine components. Customers can explore alternate materials and geometries to optimize and verify designs virtually, before actual prototyping.

We can help you choose the right products and solutions to extend operating life, reduce maintenance needs, improve energy efficiency, reduce Total Cost of Ownership, and more. We can also help you in designing sensors to monitor position, load, temperature and vibration.

When it's time to redesign, we can apply a range of knowledge about how that machinery was operated, maintained, repaired and improved over the course of its service life.

Our offers include:

- Application engineering and validation
- Design for Six Sigma
- Custom instrumentation design
- Project management
- Life cycle costing
- Testing
- System failure analysis

WE204 - Root cause bearing failure analysis

Recommended for

Reliability and maintenance personnel responsible for optimizing the performance and improving the reliability of existing rotating equipment.

Course objective

The course provides background information and methodologies for analysing damaged or failed bearings and their associated compontens. Students will learn to uncover the true root causes of reduced bearing life.

Pre-Study

GRB001 Bearing Basics

WE104 Bearing damanage analysis

EVOL12 no4 p21-29 Damage mechanicsms

Post Study

PUB 14219 EN Bearing Damage and Failure Analysis

EVOL11 no3 | p28 Golden opportunities

GS02003 Root Cause Analysis

Public course: 2 days, $1,195 per participant

Private course: please inquire

Correspondence course: please inquire

SMRP APPROVED PROVIDER

Specific topics include

Bearing fundamentals

- Terminology
- Design and function
- Lubrication
- Design of associated components

Visual damage characteristics

- ISO failure mode definitions
- Mechanisms of failure

Bearing performance

- Normal and abnormal load zones
- Bearing failure progression
- Temperature effects

Root Cause Analysis

- Investigation methodologies
- Service expectations versus service realities
- Primary, secondary and tertiary damage levels
- Case studies and workshops

Key factors affecting bearing performance

- Bearing loads
- Clearance
- Speed & vibration

Public course 2019 schedule

Calgary	Jan 31-Feb 1
Toronto	February 12-13
Montreal	February 21-22 (F)
Winnipeg	April 9-10
Montreal	April 17-18 (F)
Calgary	April 30- May 1
Edmonton	May 15-16
Kingston	August 14-15
Gatineau	September 18-19 (F)
Sarnia	October 2-3
Calgary	November 5-6
Vancouver	November 26-27
Toronto	November 27-28
Edmonton	December 4-5
Regina	December 11-12

BSD301 - Bearing system design

Recommended for

Design engineers directly responsible for rolling element bearing system design. Reliability and maintenance engineers responsible for optimizing the performance and improving the reliability of existing machinery.

Course objective

Students will gain a thorough understanding of bearing system designs used in typical industrial applications. Includes bearing life, lubrication life, seal life and other factors affecting performance and reliability of rotating equipment. This course uses a combination of lectures, open discussions and guided exercises.

Pre-Study

GRB001 Bearing basics

EVOL 2006 E2 EN 3 Using a friction model as an engineering tool

The SKF formula for rolling bearing life 2001 E1 EN tcm 12-161869

Post Study

SKF 5230 Rolling Bearings in Electrical Motors and Generators

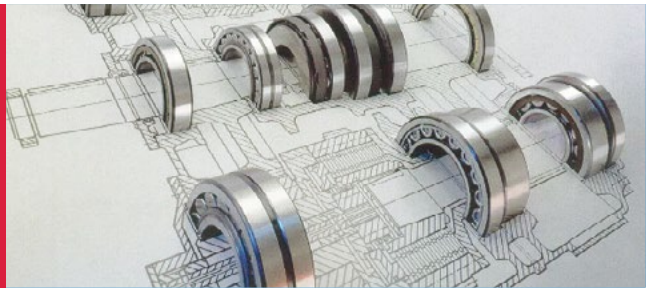
SKF 3213_E Bearings for Fans

SKF100955 1 Rolling Bearings in Centrifugal Pumps

Public course: 3 days, $1,395 per participant

Private course: please inquire

Correspondence course: please inquire



Specific topics include

Selection of bearing type

- Available space
- Loads
- Misalignment
- Precision
- Speed
- Stiffness
- Axial displacement
- Mounting & dismounting
- Integral seals

Lubrication of bearings

- Grease lubrication
- Relubrication
- Oil lubrication

Selection of bearing size

- Bearing reliability – system life
- Dynamic load ratings and life
- Dynamic and static bearing loads
- Static load ratings and capacity

Friction, speed and vibration

- Friction models
- Reference speeds
- Limiting speeds
- Influence of vibration

Calculation tools

Bearing data

- Dimensions
- Tolerances
- Internal clearance
- Materials
- Cages
- Designations

Application of bearings

- Bearing arrangements
- Radial location of bearings
- Axial location of bearings
- Designing associated components
- Bearing preload
- Sealing arrangements

Public course 2019 schedule

- Toronto May 22-24
- Toronto October 16-18

AMS101 - Maintenance & Reliability Best Practices

Recommended for

Maintenance Managers, Maintenance Superintendents, Maintenance Engineers, Maintenance Planners, Reliability Group (Engineer, Specialists, Consultants), Plant Managers, Engineering Managers, Manufacturing Managers, Production Managers, Operations Managers, Asset Managers

Course objective

Understand maintenance and reliability performance metrics and their importance in improving and sustaining effective maintenance strategies.

Pre-Study

SMRP Body of knowledge

Public course: $1,395/ participant

Private course: $6,995 for upto 10 participants

Exam fee: $600/participant
Correspondence course: please inquire

SMRP APPROVED PROVIDER

Specific topics include

Module 0: Understanding Maintenance, Reliability and Asset Management

Module 1: Organizational Business Requirements

This subject includes skills used to translate an organization's business goals into appropriate maintenance and reliability goals that support and contribute to the organization's business results.

Module 2: Process Reliability Concepts

This section includes maintenance and reliability activities to the manufacturing process of the organization to ensure that maintenance and reliability activities improve the manufacturing process.

Module 3: Equipment Effectiveness

This module includes two kinds of activities that apply to the equipment and processes for which a maintenance and reliability professional is accountable. First are those activities used to assess the current capabilities of the equipment and processes in terms of their reliability, availability, maintainability, and criticality.

Module 4: Organization and Leadership of Maintenance & Reliability Resources

This subject area includes processes for assuring that the maintenance and reliability staff is the most qualified and best assigned to achieve the maintenance and reliability organization goals.

Module 5: Establish Maintenance & Reliability Culture

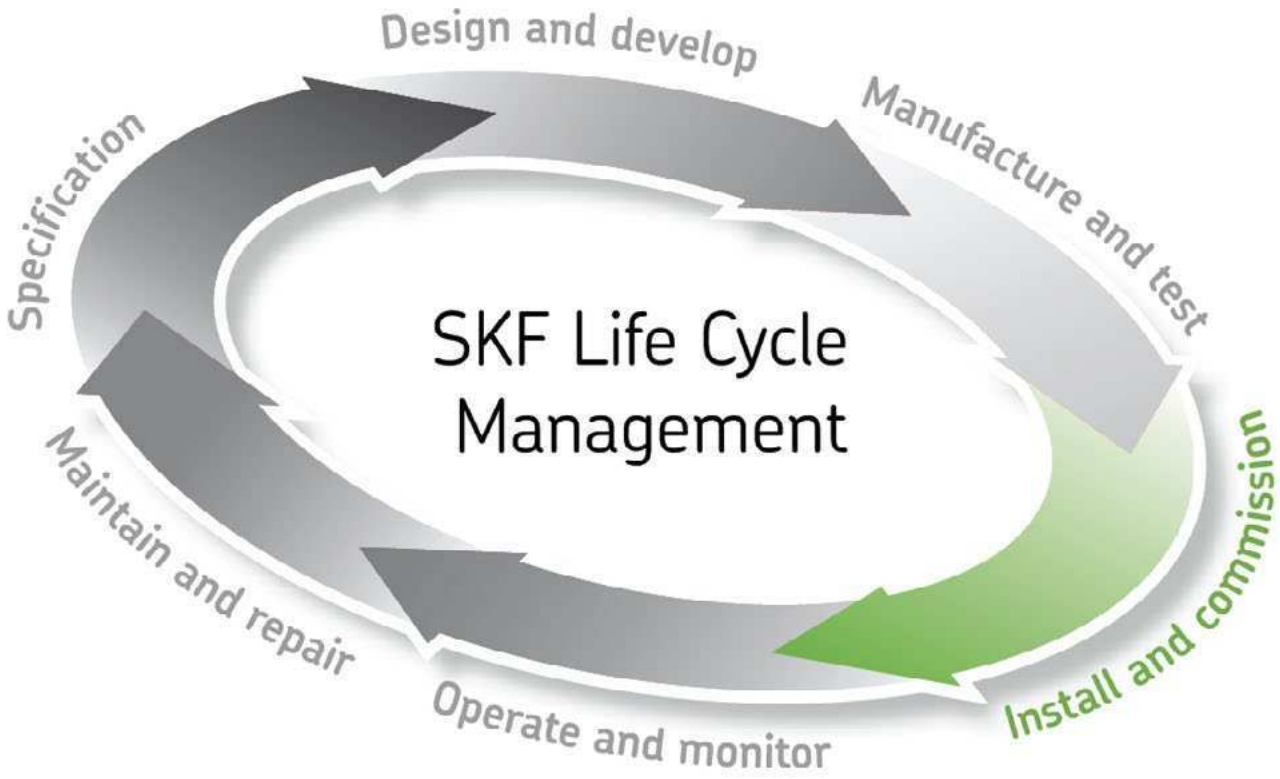
This module focuses on the skills used to get the maintenance and reliability work done. It includes planning and scheduling activities, quality assurance of maintenance activities, stores and inventory management.

Module 6: CMRP Exam (if applicable)

Contact training solutions to register for the exam online

Public course 2019 schedule

- Calgary — February 11-14
- Saskatoon — February 26-29
- Calgary — March 26-29
- Vancouver — April 24-27
- Saskatoon — June 11-14
- Edmonton — August 13-16
- Calgary — August 27-30
- Toronto — September 24-27
- Calgary — December 17-20



Install and commission

Providing expert on-site services, training and auditable procedures

Improper installation can reduce machine service life, affect product quality and drive up maintenance costs. SKF Life Cycle Management features a range of expert services, training and products to provide timely, accurate commissioning of new and replacement machinery.

Along with assisting proper mechanical setup for optimal operation, SKF can validate machine condition after installation using check-to-conformance technology. For equipment manufacturers, this validation provides a valuable record of machine operation at the point of commission. Operators can also reference this baseline throughout the service life of the machine.

Our offers include:

- Bearing mounting
- Machine installation
- Precision alignment and balancing
- Lubrication management
- Check to conformance
- Factory acceptance testing
- On-line and on-site training
- Start-up monitoring

SS101 - SmartStart – Product start up training

Need help with your newly purchased SKF equipment?

SmartStart is an on-site product start up training service that focuses on a specific product or system. It is designed to get that product up and running, your employees trained and your program implemented quickly and effectively.

This training is intended to be one-on-one or small groups to maximize the time of the students with the instructor. Since it is held at your facility, your tools and equipment are used for field exercises. This mentoring approach allows the instructor to offer insightful, pragmatic information that will provide your team with powerful tools for SKF Maintenance and Condition Monitoring Products.

Maximum group size per day is 5.
Tuition is $1,500 per day.

Available for the following products:

WICM255 - SKF Microlog Analyzers
WICM270 - SKF on-line systems
WICM271 - SKF Copperhead systems
WICM272 - SKF Imx on-line system

WE235 - SKF TKTI Thermal imaging systems
WE245 - SKF TKSA Laser shaft alignment systems
WE255 - SKF PHL Belt frequency meter
WE265 - SKF Belt Alignment systems

SM101 - SiteMentor – Advanced product training

Want to go even further with your SKF equipment? SiteMentor is an advanced instructional series specific to a variety of SKF Condition Monitoring equipment. This training is intended to help your continuous improvement and reliability projects through skill advancement of your maintenance and/or reliability group.

Available for the following products

WICM255a	SKF Microlog Analyzers and SKF @ptitude Analyst
WICM270a	SKF on-line systems
WICM350a	Advanced SKF Microlog @ptitude Analyst applications

Plan ahead! Allow your team to get comfortable with their tools for a few months; book advanced training for them at a reduced rate (6 months lead time required).

Course duration: 2 days

Tuition is $6,995 for 10 people

WICM255 - SKF Microlog Analyzers

Recommended for

Plant personnel using any of the SKF Microlog analyzers.

Course objective

This course thoroughly covers the features and fault detection capabilities of any of the SKF Microlog devices including database management, data display and data reporting features.

The course is conducted in a one-on-one or small groups format to maximize the individual learning experience. Hosted at your facility on your equipment allowing for complete personalization of the time.

Private course: 2 days, $6,995 for up to 10 people

Correspondence course: please inquire

Specific topics include

Condition monitoring basics

- Condition based maintenance program overview
- Guideline for implementing a portable condition monitoring program
- Advantages of various vibration signal processing techniques
- Techniques to isolate and detect specific machinery faults

SKF specific training

- Set up default properties on the SKF @ptitude Analyst software
- Navigating the software
- Creating databases
- Download and upload measurements
- Setting up default properties in the SKF Microlog
- Collecting route and off route measurements
- Generate graphic plots and reports

Advanced analyzer application modules

- Multi channel measurements
- FRF measurements
- Balancing

Private course available

- Please inquire | training.canada@skf.com

WICM270 - SKF On-line systems

Recommended for

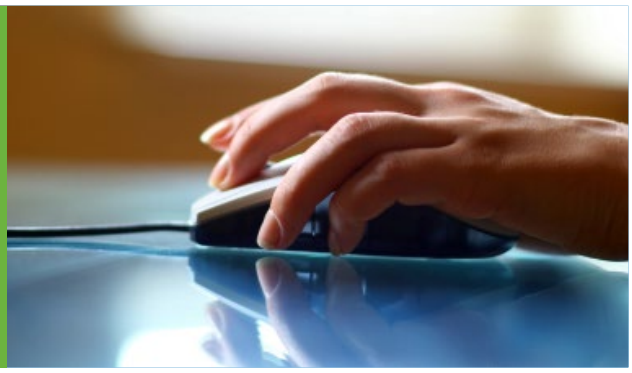
Plant personnel using SKF on-line monitoring systems.

Course objective

This course provides a detailed explanation of the operation of the SKF Microlog Consultant system and provides start up assistance on associated support software.

The course is conducted in a one-on-one or small groups format to maximize the individual learning experience. Hosted at your facility on your equipment allowing for complete personalization of the time.

Private course: 2 days,
$6,995 for 10 people



Specific topics include

SKF @ptitude Analyst On-line System concept

- Product structure
- Applications

Hardware and software installation and requirements

- Software installation and setup
- System checkout
- Windows system setting and installation options
- Installing SKF @ptitude Analyst and the CMU/TMU/MIM driver
- Troubleshooting
- CMU/TMU operation and theory

Database configuration

Application and best practices

Parametric gating and control points

On-line data collection process

Measurement process and Heartbeat concept

DAD communication and live data collection process

Reporting

- Displaying on-line data plots
- Generating and printing data reports

Private course available

- Please inquire | training.canada@skf.com

WICM350 - Advanced SKF Microlog and @ptitude Analyst applications

Recommended for

Any user of the SKF Condition Monitoring @ptitude Anlayst software and Microlog data collector requiring proficiency in the setup and use of the equipment.

Course objective

This course aims to advance the users' skill level in operating the SKF hardware and software for accurate condition detection, efficient program operation and root cause failure analysis.

Pre-Study

KBA00276 Measuring with different SKF devices

PE1109 Microlog Run up / Coast down Module

CM5003 Vibration diagnostic guide

Post Study

PE1203 Setting up a Conformance test

JM02002 Spectrum Analysis

MB01001 Low speed bearing monitoring

Public course: 3 days, $1,395

Private course: please inquire

Correspondence course: please inquire

Specific topics include

Microlog modules

- Bump test
- Run up/coast down
- FRF module
- Recorder module
- Balancing module
- ARM software

Phase collection and analysis

- Phase with a tachometer for route and non-route collection
- Cross channel phase for machine investigations
- Phase from FRF transmissibility data
- The use of strobe lights for phase analysis and machinery troubleshooting

Time waveform analysis

- Microlog and Analyst setting based on rotor rotation and fault frequency content
- Impulses/impacting and fault frequency identification
- Synchronous time averaging to isolate machinery from other external vibrations

Bearing fault detection and anlaysis

- Acceleration enveloping
- HFD readings
- Ultrasonic technologies
- Spectrum and time waveform fault identification

@ptitude Analyst optimization

- Filters, workspaces and editing for improvement
- Improved measurement parameters
- Taking full advantages of hierarchies, sharing and storing data

Effective condition monitoring alarms

- Overall alarms – manual and statistical
- Spectrum alarming techniques
- Using derived points

Report generation

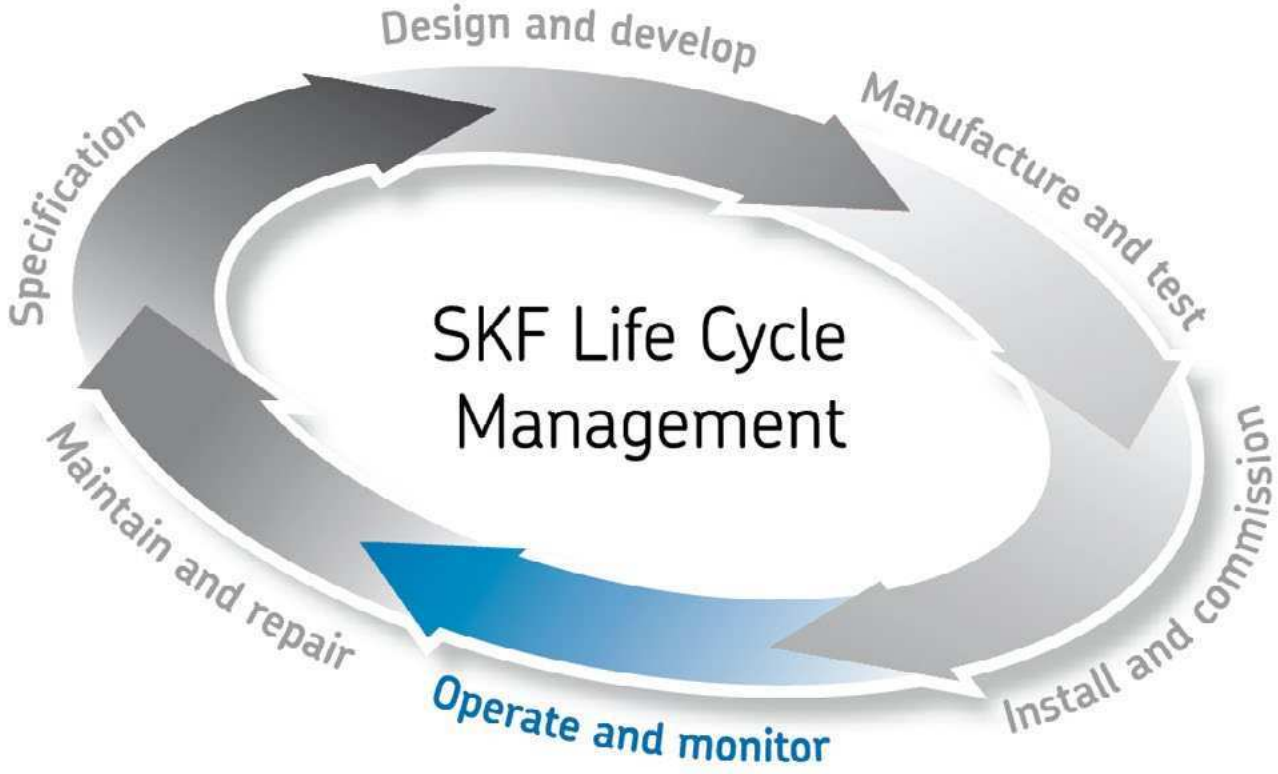
- Creating and scheduling reports
- Importing reports into MS Office

Microlog setup

- Route and non-route configurations
- Memory and setup considerations
- Cable and transducer configurations

Public course 2019 schedule

- Toronto June 4-6



Operate and monitor

Deploying the right solutions at the right time to improve productivity

By collecting and analyzing the right operating data, SKF can help you identify the need for machinery maintenance activities. Using a proven methodology we call Asset Efficiency Optimization (AEO), we help you identify and implement the right maintenance approach for you: reactive, preventative, predictive, or proactive. AEO combines a range of strategic and tactical tools to help you answer these questions to achieve maximum effectiveness and reduce your Total Cost of Ownership.

Our offers include:

- Asset Efficiency Optimization
- SKF @ptitude suite
- Operator driven reliability
- Remote monitoring and diagnosis
- Predictive maintenance

WI202 - Vibration analysis level 1 - data collection

Recommended for

Condition monitoring and maintenance personnel seeking a general understanding of condition monitoring techniques, equipment and best practices in data collection.

Course objective

The participant will learn how to select and locate appropriate sensors and how to isolate machinery. As well, participants will understand how to recognize various common problems and make recommendations for continued operation or scheduled repairs.

Pre-Study

WI100 Vibration basics

SMRP APPROVED PROVIDER

Public course: 4 days, $1,395 per participant

Optional CMVA certification exam on day 5 - Exam fee - $325 per person

CVMA membership fee additional

Private course: please inquire

Correspondence course: please inquire

Specific topics include

Principles of vibration

- Definitions, relationships, relate real-world events to conventional patterns, calculations

Data acquisition

- Safety
- Instruments
- Sensors
- Sensor mounting
- Data collection techniques
- Computer interaction
- Data quality

Signal processing

- FFT representation
- Frequency identification

Condition monitoring

- Trending
- Comparisons
- Exception report

Fault analysis

- Imbalance, misalignment
- Mechanical looseness, soft foot
- Journal and rolling bearing defects

Corrective action

- Safety issues
- Process
- Machine mounting problems
- Further investigations

Acceptance testing

- Test procedures
- Recording results

Hands-on practice

Exam preparation

The CMVA Training and Certification Committee believes that accurate, consistent data collection is absolutely essential to worthwhile route-based condition monitoring programs. CMVA membership is required to write exam. SKF is an authorized evaluator for the candidates data collection practicum.

Public course 2019 schedule

Toronto	January 21-24
Calgary	February 25-28
Montreal	March 18-23 (F)
Calgary	April 8-11
Saskatoon	May 6-9
Calgary	August 19-22
Montreal	August 26-29 (F)
Regina	September 16-19
Calgary	September 30-Oct 3
Edmonton	October 28-31
Toronto	December 9-12

WI203 - Vibration analysis level 2 – data analysis

Recommended for

Condition monitoring and reliability personnel seeking an understanding of data analysis and how to make decisions from the information that stems from a condition monitoring program.

Course objective

The participants will review the fundamentals of vibration analysis and then further their understanding of data analysis of machinery and componets as well as advanced testing techniques.

Pre-Study

WI100 Vibration basics

SMRP APPROVED PROVIDER

Public course: 4 days, $1,395 per participant

Optional CMVA certification exam on 5th day

Private course: please inquire

Exam fee: $350 - CVMA membership fee additional

Private course: please inquire

Correspondence course: please inquire

Specific topics include

Principles of vibration

- Definitions, usages, relationships, calculations and plots
- Data acquisition: technical aspects, testing, data formats, data quality

Signal Processing

- Sampling, windowing, filters
- Lowest resolvable frequency
- Resolution and averaging
- Dynamic range

Condition Monitoring

- Preventative and predictive maintenance
- Database management
- Data collection scheduling and compliance

Fault analysis

- Imbalance, misalignment, mechanical looseness, impeller or blade problems
- Journal and rolling bearing defects
- Electric motor defects, gearing problems
- Resonance and critical speeds

Acceptance testing

- Interpretation of specification and standards
- Instrument setup based on standards

Equipment testing and diagnostics

- Frequency response function
- Bump test
- Run up / coast down tests

Reference standards

- ISO, IEC, severity chart guidelines and limitations

Reporting and documentation

- Condition monitoring reports, documentation
- Vibration diagnostics

Fault severity determination

- Severity definition and parameters

Hands-on practice

Exam preparation

Public course 2019 schedule

Toronto	March 4-7
Montreal	May 27-30 (F)
Calgary	June 3-6
Regina	July 15-18
Montreal	July 22-25 (F)
Edmonton	September 9-12
Calgary	November 25-28

WI241 - Machine lubrication technician/analyst - level 1

Recommended for

Plant personnel in any aspect of machinery lubrication including maintenance, reliability and rotating equipment technicians, engineers and supervisors.

Course objective

This course introduces and establishes the role of precision lubrication and analysis for improving machine reliability.

Private course: please inquire

Optional ICML Certification Exam

A certification examination is available during the morning of day 5 for either the International Council of Machinery Lubrication Tehcnician or Analyst Level 1. The cost of the online course is $1,300/participant + exam fees is $350/participant.

Specific topics include

Applied tribology

- Surface interaction modes – sliding and rolling
- Friction, wear and corrosion
- Protective films: hydrodynamic and elastohydrodynamic

Lubricant construction

- Lubricant categories
- Base oils, additives, thickeners, greases

Lubricant performance properties

- Oil, grease and additive performance measurement
- Basic calculations for relubrication intervals

Lubricant selection practices

- Bearings, gears, hydraulics, engines

Lubricant application

- Grease: dispensing tools, metrics and automatic systems
- Oil: dispensing tools, metrics and automatic systems

Lubricant storage and handling

- Lubricant consolidation
- Bulk and packaged product receipt and storage
- Lubricant storage containers
- Storage of grease guns and other lube application devices
- Health and safety

Lubricant condition and contamination control

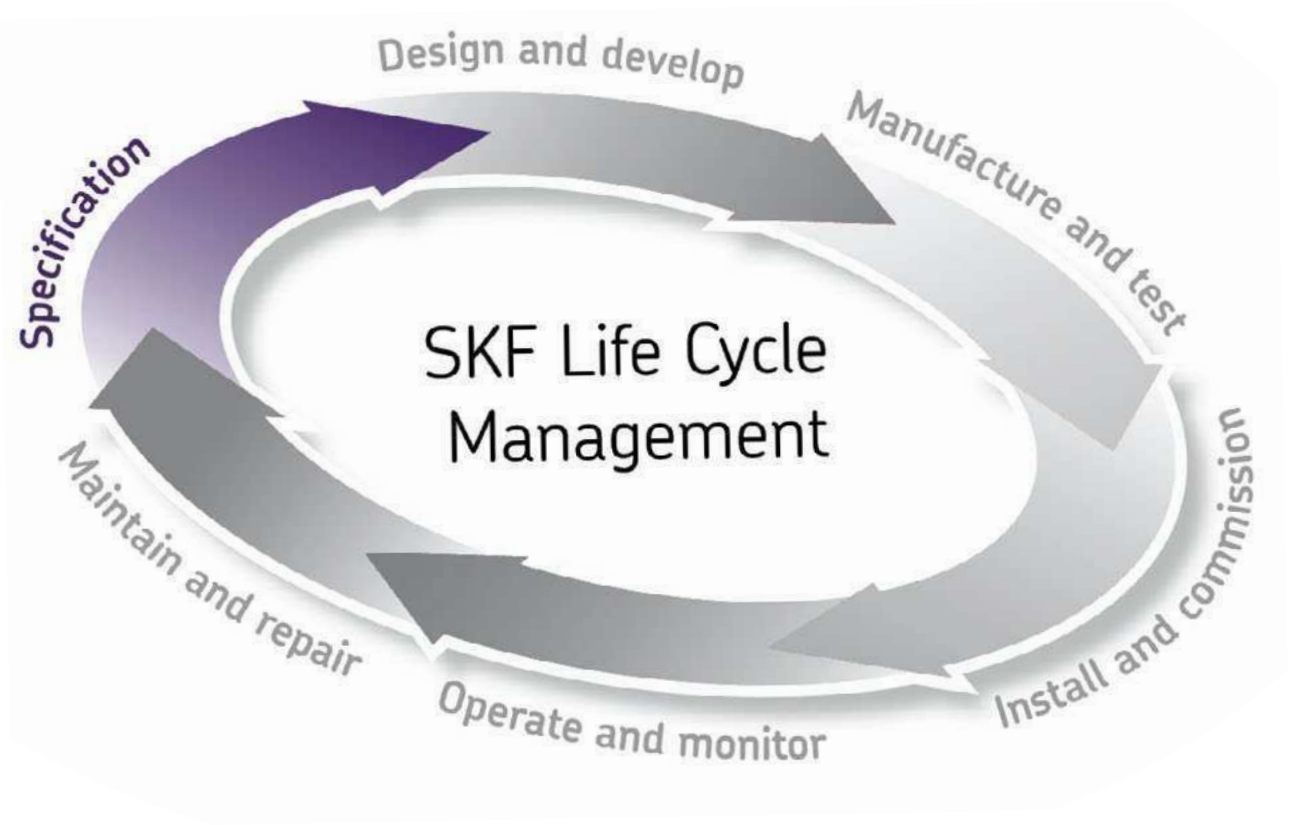
- Types of contaminants and removal
- Filtration and separation technologies
- Sump management
- Lubricant sampling methods: objectives, methods, quality, intervals
- Monitoring chemistry, contamination and wear debris

Lubricant health monitoring

- Failure mechanisms: oxidation and thermal degredation
- Additive depletion and degradation
- Mixed lubricants, viscosity and additive discrepancies
- Spectroscopy and atomic measurement

Private course available

- Please inquire | training.canada@skf.com



Specification

Working with designers to find the right solution, right from the start

SKF Engineering consultancy services can support your project with expert advice and technology selection assistance. We can help you tap into decades of SKF application knowledge with both equipment manufacturers and aftermarket customers.

As you develop your specification, our research and development programmes and testing facilities can support project conception and feasibility. We can help you choose from thousands of off-the-shelf products, as well as fully customized solutions, to help your project become a reality.

Our offers include:

- SKF Asset management consultancy services
- SKF Engineering consultancy services
- Research and development
- Design for Six Sigma
- Reliability training
- Catalogue and customized products

AMS332 - Reliability centred maintenance (RCM/SRCM)

Recommended for

Reliability engineers and technologists.

Course objective

Students will learn to use the analytical tool or RCM/SRCM, to identify cost-effective solutions to critical failure modes. They will also learn to assist the planners and maintainers in understanding the intent of the maintenance tasks and the importance of implementing correctly those same tasks.

Pre-Study

MS100 AEO basics

MS130 Maintenance strategy review

MB03017 Methodology SRCM

MB05004 Redefining Maintenance Strategy -SRCM Process

Post Study

MB02029 Criticality analysis in perspective

MB07005 TPM with SRCM

MB03016 RCM That Works - SRCM

Public course: 2 days, $1,195 per participant

Private course: please inquire

Correspondence course: please inquire

Specific topics include

Reliability centred maintenance principles

- Understand the evolution of RCM
- Understand the business context of RCM

RCM Essentials

- Criticality matrix
- How to select which system to analyze
- Failure modes and effects

What should be done?

- FMECA
- Functions and functional failures
- Criticality of failures
- Failure patterns

Implementation and improvement

- Applying maintenance tasks
- Task selection and MTBF
- Decision tree

Public course 2019 schedule

- Toronto May 8-9

SSYB001 - Six Sigma Yellow Belt

Recommended for

Participants who have interest or need to develop their Six Sigma foundational knowledge. Yellow Belt can be for entry-level employees who seek to improve their knowledge of Six Sigma fundamentals or for executive champions who require an overview of Six Sigma and design, measure, analyze, improve, control (DMAIC) approach.

Course objective

Students will learn the approach of advancing the concept and potential of using Six Sigma tools and methodologies within organization. The focus is on the Six Sigma concepts and learning how to use the A3 (structured problem solving and continuous improvement) tool.

Private course: please inquire

Specific topics include

- Fundamentals of Six Sigma principles, roles, and value to the organizatior
- The tools used for the mandatory steps in Six Sigma DMAIC Roadmap
- Define the project goals and deliverables
- Measure and validate baseline process parameter
- Identify vital few process inputs that affect the output
- Generate and implement optimal solution
- Ensure that the result will last

Yellow 6 Belt

Private course available

- Please inquire | training.canada@skf.com

LE001 - Lean Excellence

Recommended for

Managers and employees who are keen to get an overview and general understanding of the Lean methodology, its possibilities and applicable areas in the business.

Course objective

This course will showcase an understanding of the concepts, tools and principles of lean.

Private course: please inquire

Specific topics include

- The history of Lean
- Fundamentals of lean principles
- How do you define value
- The cost of poor quality
- Lean tools: brainstorming, affinity diagram, process flow charts, 5S, etc.
- Difference between the lean philosophy and Six Sigma.
- How do you pursue perfection?

Private course available

- Please inquire | training.canada@skf.com

Course registration form

PDF form available online at: www.skf.ca/sts

Registrant Information (please print)

Discount applies when two or more register from the same company

Course Name: _____ Course Dates: _____

Participants Name: _____ Title: _____

Participants Name: _____ Title: _____

Participants Name: _____ Title: _____

Organization: _____

Billing Address: _____

City: _____ Province: _____ Postal Code: _____

Tel: _____ Fax: _____ E-mail: _____

Payment Method (please select your payment method of choice)

- ☐ Cheque Enclosed — Cheque # (payable to SKF Canada Ltd.): _____
- ☐ VISA — Credit Card Number: _____
- ☐ MasterCard — Name on Card: _____ Expiry Date: _____
- ☐ Electronic Funds Transfer (EFT)

Please mail or e-mail the completed registration form to

Option 1

SKF Training Solutions

Lubhani Sharma

928 72nd Avenue

NE Calgary, Alberta T2E 8V9

- Tel: 403-519-1655
- Email: training.canada@skf.com

Option 2

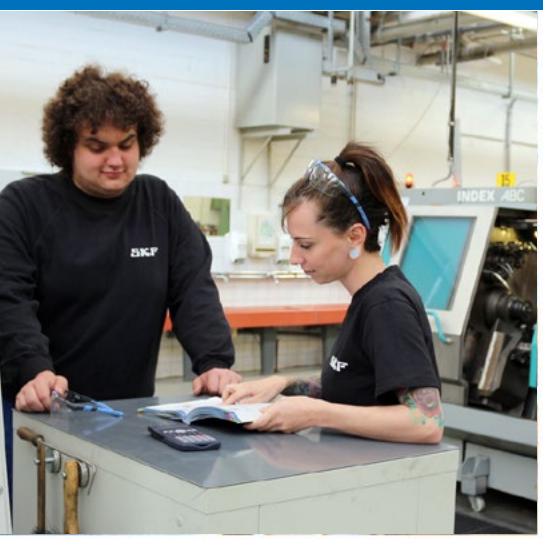
Your local SKF Authorized Distributor

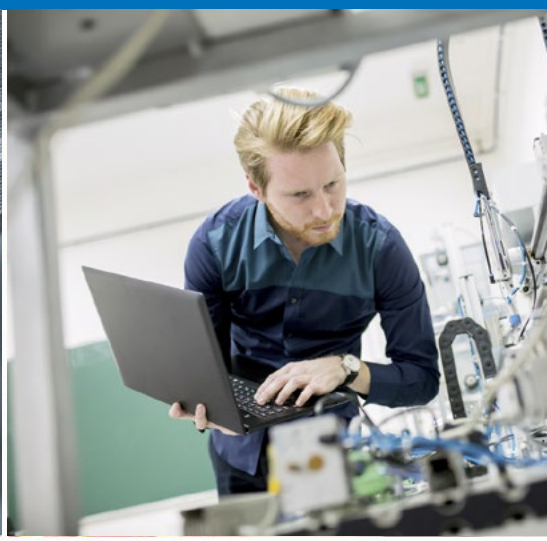
Cancellation Policy

Cancellation will only be accepted in writing (email).

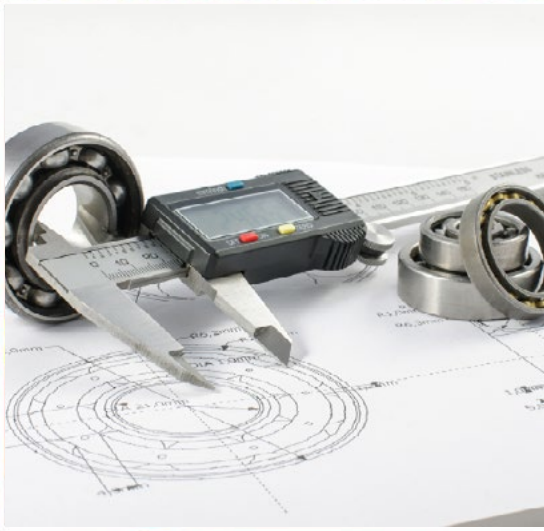
Cancellation within two weeks of the course start date will be subject to charges equal to 100% of the course fee. The registrant may send a delegate in their place. The registrant may reschedule their training to the next available course offering with a 20% rebooking fee.

Cancellation on the part of SKF will result in full course fee refunds.







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