**Basic Gear Inspection for Operators**

**INSTRUCTOR:**

**William “Mark” McVea, Ph.D., P.E.**

Email: [markmcvea@kbeplus.com](mailto:markmcvea@kbeplus.com)

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| **COURSE INFORMATION** |

**Course Description:**

This course will provide a solid foundation for anyone going into gear inspection. Learn the common, current and basics of the tools and techniques used to measure and inspect gears. Understand the four main categories by which a gear is evaluated and classified. Gain proficiency in understanding gear quality by learning the numerical scale on which gear design, manufacture and inspection are based, and more.

**It is recommended that you spend a minimum of 1 hour reading and reviewing the material each day.**

**Who Should Attend:**

This course will appeal to anyone who is interested in the measurement and inspection techniques of gears or gear systems. It will provide benefit to people just getting into the measurement and inspection roles equally as well to those who have been involved for a while. We will cover from the very basic ‘process control’ level inspections to full Gear Measurement Machine (GMM) computer-based systems.

**Learning Objectives**

* Describe the differences between measurement and inspection
* Thorough review of measurement techniques
* Thorough review of inspection results
* Use means and methods to interpret and use the outcomes of both measurements and inspection to guide better gear production
* Describe of manufacturing and process cause and effect as defined by the results of gear inspection
* Explain the correlation between manual measurement techniques and how automated GMM (Gear Measurement Machine systems) perform the same task
* Be able to explain the automated processes used by GMM systems to assess gear quality
* Review of applicable standards

**Required Textbooks (Provided by AGMA):**

*Basic Gear Inspection for Operators* manual by William “Mark” McVea.

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| **COURSE OUTLINE** |

* What Is Inspection;
  + What is inspection
  + What is measurement
  + What are we trying to do
* Reading The Drawing;
  + What does the drawing tell us
  + How do we interpret that information
  + How do we use that information
* Standards;
  + Drawings contain a great deal of information, but not all
  + What do the standards add
  + How do we use the standards
* Manual Measurements;
  + Tools
  + Techniques
* Dedicated Tools;
  + Tools
  + Techniques
* Automated Measurement Systems;
  + Why automate
  + Automate what
* Meaning Of Results;
  + How to read the reports
  + How to interpret the reports
  + What do the results mean
* Other Than Form;
  + Gear interaction
* Quality Systems;
  + What to look for in terms of process control
  + Corrective actions

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| **STUDENT FEEDBACK AND GRADING PROCEDURES** |

**Assignments**

Assignments and learning activities are given and directed at the discretion of the instructor.

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| COURSE MANAGEMENT |

**Weather Delays and Cancelations**

We will communicate any cancellations, delays or other concerns for safety prior to class via email, voicemail, and/or text message. Please be sure that we have all pertinent contact information as you travel to your class location.

**Attendance for Domestic and International Students**

Please be mindful that these are short, accelerated courses. Attendance is extremely important. If you are going to be absent from any class day, please contact the course coordinator.

**Plagiarism, Cheating and other types of Misconduct**Plagiarism[[1]](#footnote-1), cheating and other types of misconduct are unacceptable.

**Students with Disabilities**Students requiring assistance and accommodation should complete the [Special Accommodation Request form](http://www.graduateschool.edu/images/stories/AcademicPrograms/AdmissionsApplicationGuideD3.pdf) and submit it to Stephanie Smialek, Education Manager at [smialek@agma.org](mailto:smialek@agma.org). She can be reached at 773-302-8026.

**Grievance Procedures**Students who have concerns about the class are encouraged to contact Stephanie Smialek, Education Manager, at [smialek@agma.org](mailto:smialek@agma.org) or 773-302-8026.

**Outline Changes**The instructor reserves the right to modify the outline during the course of the class.

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| LEARNING AND OTHER RESOURCES |

**Links for writing resources:**

* grammar.ccc.commnet.edu/grammar
* [www.merriam-webster.com](http://www.merriam-webster.com)

**Links for Math resources:**

* [www.sosmath.com](http://www.sosmath.com)
* Khan Academy on www.youtube.com

**Links for time management, study skills and note taking resources:**

* [www.mindtools.com](http://www.mindtools.com)
* [www.testakingtips.com](http://www.testakingtips.com)

**Links for career resources:**

* <https://www.agma.org/newsroom/jobs/>

**Industry News**:

* https://www.agma.org/newsroom/industry-news/

1. Plagiarism is defined as “the use or close imitation of the language and thoughts of another author and the representation of them as one’s own original work.” [↑](#footnote-ref-1)