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**Analytical Gear Chart Interpretation**

**INSTRUCTOR:**

**Dwight Smith**

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| **COURSE INFORMATION** |

**Course Description**

This course is an introduction to the methodology of analytical gear inspection and the evaluation and interpretation of the resulting data. The application of this information to identify and correct manufacturing errors will begin to be explored. Additionally, it reviews chart interpretation and applies inspection data to understand the causes and cures of manufacturing errors. Many chart examples are used to understand cause and effect.

**Who Should Attend**

People relatively new to gear manufacturing/inspection; Quality control people as well as manufacturing people will benefit from better understanding how gears are measured and evaluated; Others from quoting, processing and sales also can gain knowledge of inspection reports beyond the "wiggly lines"

**Learning Objectives**

* Identify major gear characteristics measured and methods used
* Evaluate pitch, profile and helix
* Use AGMA ANSI ISO analysis methods
* Compare/contrast 2008-A88 with the current standard AGMA ANSI ISO 1328-1-B14
* Understanding errors from various gear manufacturing processes
* Hobbing
* Shaping
* Shaving
* Grinding
* Understanding the relationship between inspection charts and manufacturing kinematics
* Using inspection chart information to determine the root causes of errors

**Required Textbook**

**Textbook will be provided by AGMA**

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| COURSE OUTLINE |

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| Nomenclature review  Gear terminology  What is measured and how?  How gears are measured  CNC analytical gear inspection  Pitch  Single pitch  Cumulative pitch  Analyzed runout  Helix  Is it metal, helix or lead?  Profile  Evaluation of the trace data  AGMA ANSI ISO 1328-1-B14 standard  Total  Form  Angle  Crown  Specified profile, specified helix  AGMA 2000-A88  Real world additional requirements on drawings  Band fit vs analyzed numerical results  What does it mean and what to do about it?  Some Things to Consider  Pitch Errors  Helix Errors  Profile Errors  Interpreting the charts with examples  Helix variation  Patterns and causes  Profile variation  Patterns and causes  Hob runout and solution  Pitch variation  Patterns and causes |

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| **STUDENT FEEDBACK AND GRADING PROCEDURES** |

**Assignments**

There will be a short self-graded quiz at the end to show knowledge transfer.

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| COURSE MANAGEMENT |

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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 |

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**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)