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**A Practical Approach for Managing Gear Noise**

**INSTRUCTORS:**

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| **COURSE INFORMATION** |

**Course Description**

“A Practical Approach for Managing Gear Noise” combines light theory with a heathy dose of practical testing and simulation techniques used to manage gear noise. Topics focus on insights into the mechanisms for both whine and rattle, the two most common categories of gear “noise”. The course presents clear explanations relating subjective evaluations of audible noise to objective actions, including troubleshooting and countermeasures, based on the instructors’ direct experience in industry.

**Course Rationale/Students Course Designed to Serve**

Students, technicians, engineers, and managers interested in or responsible for the management of gear noise in a variety of industries.

**Learning Objectives:**

* Explanation of the underlying physics of gear noise generation mechanisms for whine and rattle
* Exposure to vibration and sound instrumentation and testing techniques used to characterize whine and rattle
* Introductions to advanced simulation tools for understanding the underlying physics of gear whine and rattle, with insight into troubleshooting and countermeasures.

**Reference Guide (Provided by AGMA)**

“A Practical Approach for Managing Gear Whine” by Robert White and Brian Wilson

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| COURSE OUTLINE |

1. Basics – guide to the underlying physics of gear whine and rattle; Subjective-to-objective relationships are described using Quality Function Deployment charts, Noise Path Analysis, Source-Path-Receiver Models, Tonal Noise Target Setting, etc.
2. Test – fundamental explanation of vibration and sound measurement techniques are presented, including post-processing methods specific to whine and rattle.
3. Simulation – exposure to a various simulation tools and methods used to characterize whine and rattle, including approaches for high mileage gear whine predictions, thermal growth effects, boundary condition effects, and idler/planetary phasing
4. Counter-Measures – a practical approach to solving gear whine and rattle issues

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| **STUDENT FEEDBACK AND GRADING PROCEDURES** |

**Assignments**

A self-graded assessment is administered during this course. Immediate feedback is given, and the material is reviewed by 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. 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 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)