

# Automotive Technology 7<sup>th</sup> Edition

## Chapter 45 – Electronic Fundamentals

### Lesson Plan



#### **CHAPTER SUMMARY:**

1. Semiconductors, Diodes, High-Voltage Spike Protection, and Diode Ratings
2. Light-Emitting Diodes, Photodiodes, Photoresistors, and Silicone-Controlled Rectifiers
3. Thermistors, Rectifier Bridges, Transistors, and Integrated Circuits
4. Transistors Gates, Operational Amplifiers, and Electronic Component Failure Causes
5. How to Test Diodes and Transistors, Converters and Inverters, and Electrostatic Discharge



#### **OBJECTIVES:**

1. Discuss semiconductors including doping, P-type material, and N-type material.
2. Describe diodes, including zener diodes.
3. Discuss high-voltage spike protection.
4. Discuss diode ratings.
5. Discuss light-emitting diodes.
6. Describe photo diodes.
7. Describe photoresistors.
8. Describe silicon-controlled rectifiers.
9. Describe thermistors.
10. Describe rectifier bridges.
11. Describe transistors, including field-effect transistors and phototransistors.
12. Describe integrated circuits.
13. Describe transistor gates.
14. Describe operational amplifiers.
15. Discuss electronic component failure causes.
16. Describe how to test diodes and transistors.
17. Discuss converters and inverters and how they are used.
18. Explain electrostatic discharge damage and how to avoid it.



#### **RESOURCES:** (All resources may be found at jameshalderman.com)

1. Task Sheet: Electronic Fundamentals
2. Chapter PowerPoint
3. Crossword Puzzle and Word Search
4. Videos: [\(A6\) Electrical/Electronic Systems Videos](#)
5. Animations: [\(A6\) Electrical/Electronic Systems Animations](#)



#### **ACTIVITIES:**

1. Task Sheet: Electronic Fundamentals
2. Crossword Puzzle and Word Search



#### **ASSIGNMENTS:**

1. Chapter crossword and word search puzzles from the website.
2. Complete end of chapter quiz from the textbook.
3. Complete multiple choice and short answer quizzes downloaded from the website.

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#### **CLASS DISCUSSION:**

1. Review and group discussion chapter Frequently Asked Questions and Tech Tips sections.
2. Review and group discussion of the five (5) chapter Review Questions.

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#### **NOTES AND EVALUATION:**

