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Investigating student understanding in an upper-division analog electronics course¹

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The Physics Education Group at the University of Washington has recently begun an in-depth investigation of student understanding of analog electronics. As part of this investigation, we have been examining student learning in an upper-division laboratory course on this subject. In particular, we have administered written questions on fundamental electric circuits concepts (typically covered in introductory physics courses) and on canonical topics in analog electronics (e.g., filters, diodes, transistors, and operational amplifiers). Drawing on the results from such questions, we are investigating the impact of the analog electronics course on student conceptual understanding. Specific examples will be used to illustrate how the findings from this investigation have implications for instruction in both introductory and upper-division courses.

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