Voltage Regulators

Note that we can view a shunt regulator as a three-terminal device, inserted between a voltage source and a load:

Integrated circuit technology has resulted in the creation of other three terminal voltage regulator designs—regulators that do not necessarily use zener diodes!
These integrated circuit voltage regulators are small and relatively inexpensive.

In addition, these IC regulators typically have better load regulation, line regulation, and/or efficiency than the zener diode shunt regulator!

Q: Wow! The designers of these IC regulators obviously had a much better electronics professor than the dope we got stuck with! With what device did they replace the zener diode?

A: The electronic design engineers did not simply “replace” a zener diode with another component. Instead, they replaced the entire shunt regulator design with a complex circuit requiring many transistor components.
Integrated circuit technology then allows this complex circuit to be manufactured in a very small space and at very small cost!