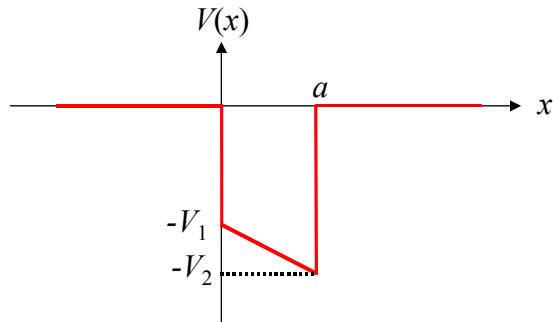


EEE434: Quantum Mechanics

1. Consider a trapezoidal potential well shown in the figure below. Using the WKB method, find the bound states within the well. If $V_1=0.3$ eV, $V_2=0.4$ eV and $a=5$ nm, what are the bound state energies? Use $m^*=6 \times 10^{-32}$ kg for the effective electron mass in your calculations. (Notes for the WKB approximation are posted on the Web site)



2. Consider a triangular potential barrier as occurs in MOSFETs. The height of the barrier is 3 eV and its width is a . What are the maximum width of the barrier so that $T=0.1$ and $T=0.001$? For the effective electron mass use $m^*=0.91m_0$.