



**INSTITUTO TECNOLÓGICO SUPERIOR
DE SAN ANDRÉS TUXTLA**



DIVISION DE INGENIERIA MECATRONICA

ASIGNATURA: ELECTRONICA ANALOGICA

CATEDRATICO: ING. JUAN MERLIN CHONTAL

GRUPO: 511-A

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“FUENTES DE CD CON DIODO ZENER”

PRESENTAN:

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SAN ANDRÉS TUXTLA, VER

A 02 DE NOVIEMBRE DEL 2022

MATERIAL DE EXPOSICION

Las diapositivas mostradas en clase, muestran el siguiente circuito, correspondiente al Caso 1 (Diodo Zener Abierto).

The slide is titled "Funcionamiento del Diodo Zener". It includes a diagram of a Zener diode symbol labeled "Figura 1, símbolo del diodo zener [2]". The text explains that a Zener diode is designed to maintain a constant voltage across its terminals, known as the Zener voltage V_Z , when reverse-biased. It notes that the peculiarity of its operation occurs when it is reverse-biased, meaning the cathode is at a positive voltage and the anode is at a negative voltage; when this happens and it reaches or exceeds V_Z , the diode conducts and maintains a constant voltage equal to V_Z .

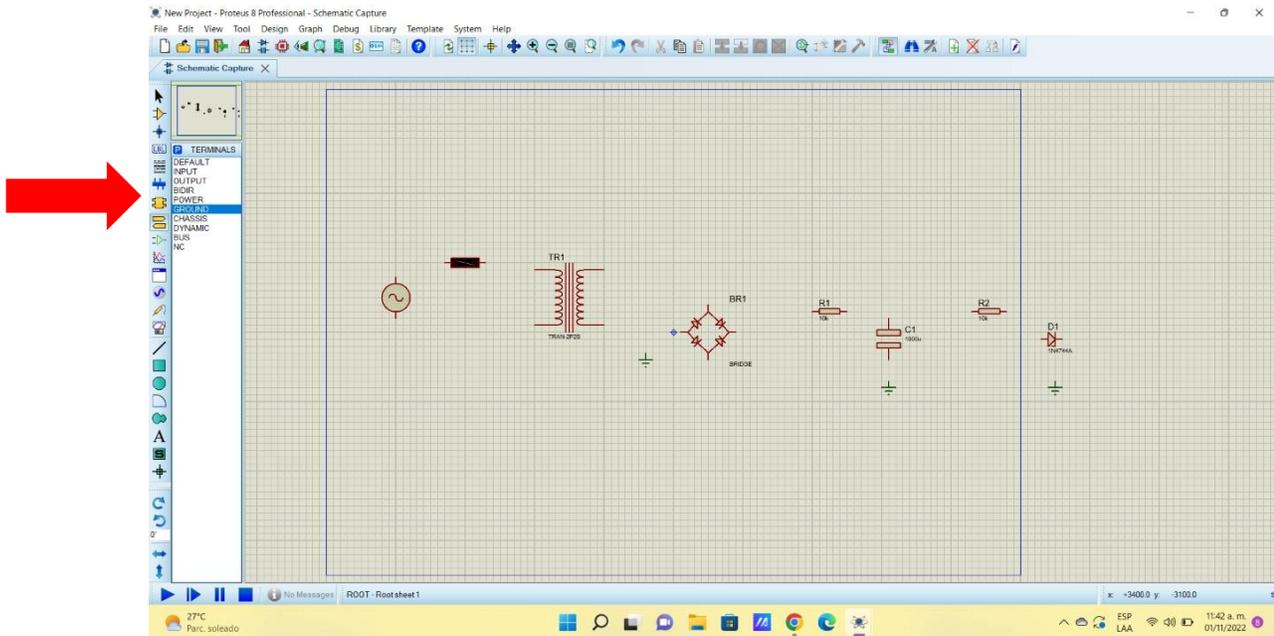
Below the text is a graph labeled "Figura 2, curva característica del diodo zener [3]". The graph plots current I_f on the vertical axis against voltage V_f on the horizontal axis. The curve shows a sharp increase in current at the Zener voltage V_Z . Key points on the graph include V_Z (nom), V_Z max, V_Z min, I_Z min, and I_Z max. A region is labeled "Zona de trabajo".

The slide is titled "Figuras prueba de fuente" and specifically "a) Voltaje de salida correcto sin carga". It shows a circuit diagram for a power supply test. The circuit starts with a 120 V, 60 Hz AC source connected to a transformer. The secondary winding is connected to a bridge rectifier with four diodes labeled D_1, D_2, D_3, D_4 . The output of the rectifier goes through a resistor labeled $R_{sobrecorriente}$ and a capacitor labeled "Filtro". This is followed by a voltage regulator circuit consisting of a 24 V Zener diode, a resistor labeled "Regulador 180 Ω ", and an 1N4744A diode. The final output is labeled V_{sal} and is measured by a DMM (Digital Multimeter) showing a reading of 15.5 V.

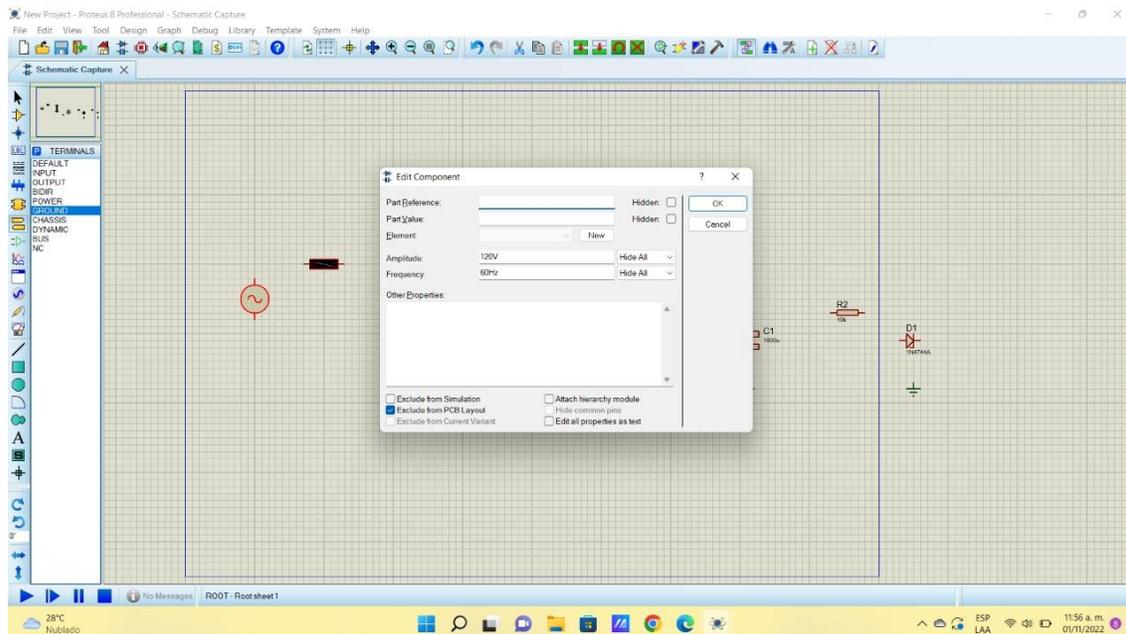
UTILIZACION DE SOFTWARE

Para realizar el circuito anterior, se utilizó Proteus 8 Professional (se adjunta evidencia).

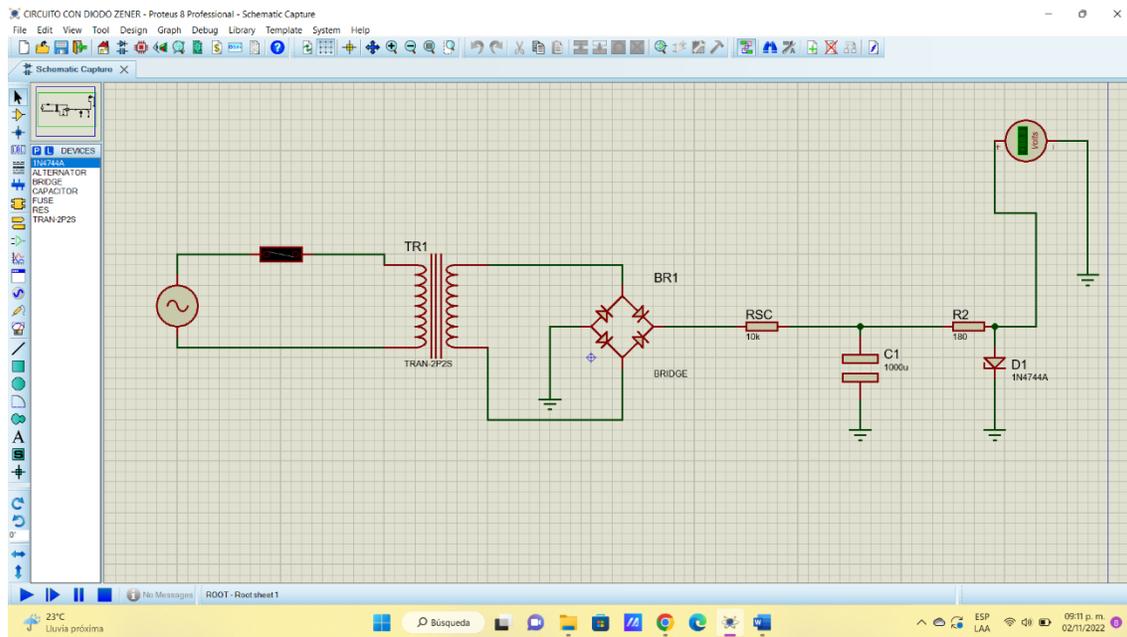
Primero, se insertan los elementos necesarios para elaborar el circuito.



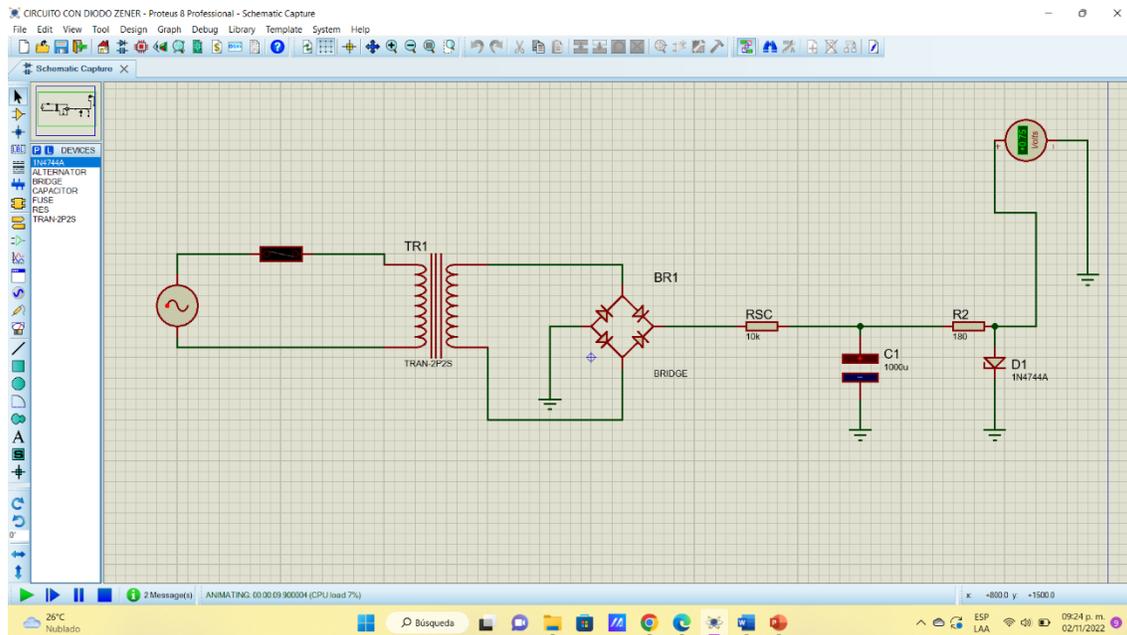
Posteriormente, es necesario ajustar las propiedades de los elementos a utilizar, para que el circuito pueda funcionar adecuadamente.



Circuito terminado



Circuito ejecutado



EVIDENCIA FOTOGRAFICA DE EXPOSICION

