

**RADIO ENGINEERING I**  
**HOME ASSIGNMENT 2/2025 HW3**

Return by 21.11.2025 @20.00

**Return your answer to Moodle.****Write tag HW3, your name, and student ID on all sheets you are returning.****Name** \_\_\_\_\_**Student ID** \_\_\_\_\_

Q1: Design a single section coupled line coupler with a coupling of 20 dB, a system impedance of  $75\ \Omega$ , and a center frequency of 10 GHz. If the coupler is to be made in stripline (edge-coupled), with  $\epsilon_r = 2.2$  and  $b = 0.32\text{ cm}$ , find the necessary strip widths and separation.

Q2: Design a Wilkinson power divider with a power division ratio of  $P_2/P_3 = 2$  and a source impedance of  $50\ \Omega$ . How to do the matching if all the three ports are connected to the impedance level of  $50\ \Omega$ .

In your solution, please show all the necessary calculation steps.