BMEN 6393 - Neural Engineering Methods and Applications

BMEN 6393 Neural Engineering Methods and Applications (3 semester credit hours) This course will cover Neural Engineering methods used for neural ensemble recording and neural stimulation. Electrodes and devices used in Brain Machine Interfacing (BMI), deep brain stimulation (DBS), spinal cord stimulation (SCS), transcranial direct current stimulation (TDCS), and Peripheral Nerve Interfacing will be covered. Advanced techniques including modulation by optogenomics and the development of new voltage fluorescent probes will be explained. The use of neural prosthesis for the restoration of sensory and motor function will be reviewed. This course will help students to understand a wide range of methodology currently used to interrogate and modulate the nervous system. Recommended prerequisites: (BMEN 3330 or equivalent) and (BMEN 3350 or equivalent). (3-0) Y