Department: Civil & Environmental Engineering **Division: Civil engineering**
Level and Major: Graduate - Earthquake Engineering

Course Title: seismic control of structures **Number of Credits: 3**
Prerequisite (Corequisite): Structural analysis (I), Concrete Technology **Lecturer: -**

Course Topic

- The general concept of structural control includes :inactive ,semi active ,active and hybrid control
- A:inactive control: checking the performance of inactive dampers such as friction damper,smetal,viscoelasti,cfluid
- Investigatio no finactiv econtrol mechanism sfro mtyp eo fTMD,TLD,and types of base-isolation systems
- B:semi-active control
  Investigate the performance of MR and ER dampers and smart materials like piezoelectric and SMA
- C:active control
  Reminding some of the content needed such as :Laplace transform and calculus variations
- Theory of classic control
- Optimal classic control theory for different states such as: open-Loop ,closed-Loop, open-closed loop, numerical solution of relevant equations
- Theory instantaneous optimal control for open-Loop, closed-Loop states ,numerical solution of relevant equations
- D :the other control mechanisms :an overview of other active control methods such as:pulse method, independent medi space control, Hodio control ….,mechanisms of applying force including :ATMD, active tendons ,AVS,AVD….
- Introductions from sustainable control-Lyapunov functions

Course Description:
Reading Sources:
Course Goals and objectives:
Evaluation:
Course topics:
The course aims to: