

Ankara Üniversitesi
Kütüphane ve Dokümantasyon Daire Başkanlığı

Açık Ders Malzemeleri

Çalışma Planı (Çalışma Takvimi)

| Haftalar | Haftalık Konu Başlıkları |
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| 1.Hafta | <ul style="list-style-type: none">○ Introduction○ general concepts |
| 2.Hafta | <ul style="list-style-type: none">○ Mathematical modelling○ Ordinary Differential Equations(ODE) and Solution of ODE |
| 3.Hafta | <ul style="list-style-type: none">○ The representation in terms of deviation variables○ ODE in terms of deviation variables○ inputs and outputs in terms of deviation variables |
| 4.Hafta | <ul style="list-style-type: none">○ Transfer function○ Time constants○ The ultimate value of outputs○ The steady-state gains○ Transient response |
| 5.Hafta | <ul style="list-style-type: none">○ process dynamics○ Linear process dynamics○ nonlinear process dynamics○ initial values○ forcing functions |
| 6.Hafta | <ul style="list-style-type: none">○ The effect of damping ratio on process response○ Overdamped response○ Critically damped response○ Underdamped response○ Natural or undamped response○ Transportation and dynamic lags○ Nature of roots |
| 7.Hafta | <ul style="list-style-type: none">○ The feedback control systems○ Safety considerations, Ideal and actual behaviours○ Ideal on/off controller○ On/Off controller with dead band○ Proportional controller |
| 8.hafta | <ul style="list-style-type: none">○ The feedback control systems |

| Haftalar | Haftalık Konu Başlıkları |
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| | <ul style="list-style-type: none"> ○ Proportional-Integral controller ○ Proportional-Derivative controller ○ Reset rate, gain of controller, integral time, derivative time ○ Proportional-Integral -Derivative controller |
| 9.Hafta | <ul style="list-style-type: none"> ○ Controller design and evaluation of their effectiveness ○ Offset, ○ Servo and Regulator Problems ○ Response of Proportional control system ○ Response of proportional –Integral control system |
| 10.Hafta | <ul style="list-style-type: none"> ○ Controller design and evaluation of their effectiveness ○ Matlab-Simulink applications ○ Response of Proportional –Integral –Derivative control system |
| 11.Hafta | <ul style="list-style-type: none"> ○ The frequency response ○ The response of first-order systems ○ The response of second-order systems ○ Amplitude ratio, phase angle, radian frequency, period, substitution rule |
| 12.Hafta | <ul style="list-style-type: none"> ○ Nyquist and Bode diagrams ○ Logarithm of amplitude ratio versus logarithm of frequency ○ Corner frequency, Bode plots, crossover frequency ○ Stability criterion ○ Gain and Phase margins ○ Control system designer, safety factor |
| 13.Hafta | <ul style="list-style-type: none"> ○ Stability analysis ○ Stability criterion, stability of typical roots ○ Routh test for stability |
| 14.Hafta | <ul style="list-style-type: none"> ○ PID controller parameters calculation ○ Ziegler-Nichols controller settings ○ Tyreus-Luyben |