Course Description Form

| 1. Cou | urse Name: | | | | |
|--------------|--|--------------------------------|--------------------------|--|-----------------|
| Control a | nd Measureme | nts | | | |
| 2. Cou | urse Code: | | | | |
| MPAC41(|) | | | | |
| 3. Ser | nester / Year: | | | | |
| yearly(202 | 24-2025) | | | | |
| 4. Des | scription Prep | aration Date: | | | |
| The begin | nning of the aca | ademic calendar for | the year (202 | 4-2025) | |
| | ailable Attenda | | | | |
| | neoretical and practical moder of Cradit | etical Hours (Total) / Nur | nhar of Units (| Total) | |
| 60 hours / 4 | | | | 10(a) | |
| | | | | | , |
| | <u>urse administ</u> me: Ahmed Eh | rator's name (mer | ition all, if mo | re than one | e name) |
| | | san san83@gmail.com | | | |
| 2111 | | <u>Sanco C ginameoni</u> | | | |
| | | | | | |
| 8. Coi | urse Objectives | | | | |
| Course Obj | ectives | | | ntification of the time of the termination of termination | • • |
| | | | 2. Cap | acity to repres | sent electrical |
| | | | | echanical syst | |
| | e e | 0047 | 3. Ana | alysis of the ex | kit signal from |
| 0 Τος | aching and Log | rning Strategies | the co | ntrol systems. | |
| Strategy | | 1. Lectures. | 11 | | |
| onategy | | 2. Use of blackboard | l and telephones | | |
| | | 3. Computer use. | | | |
| 10 Cours | se Structure | | | | |
| Week | Hours | Required | Unit or | Learning | Evaluation |
| HUCK | nours | Learning | subject | method | method |
| | | Outcomes | name | | |
| 1st week | | | Introduction to | Theoretical + | quiz |
| | 2 Theoretical + 2 | The student understands the | Control Systems, Open | practical | |
| | practical. | subject | and Closed Systems. | | |

وصف المقرر الدراسي

جامعة وارث األنبياء / كلية الهندسة

| 2nd week | 2 Theoretical + 2 | The student | Introduction to | Theoretical + | quiz |
|-----------|---------------------|-----------------|-----------------|---------------|------|
| | practical | understands the | Control | practical | 1 |
| | Ĩ | subject | Systems, Open | 1 | |
| | | | and Closed | | |
| | | | Systems. | | |
| 3rd week | 2 Theoretical + 2 | The student | Mathematical | Theoretical + | quiz |
| | practical | understands the | Modeling of | practical | 1 |
| | 1 | subject | Physical | 1 | |
| | | | Systems and | | |
| | | | Transfer | | |
| | | | Functions, | | |
| | | | Mathematical | | |
| | | | Modeling of | | |
| | | | D.C. Servo | | |
| | | | Motor. | | |
| 4th week | 2 Theoretical $+2$ | The student | Mathematical | Theoretical + | quiz |
| | practical | understands the | Modeling of | practical | |
| | | subject | Physical | - | |
| | | 5 | Systems and | | |
| | | | Transfer | | |
| | | | Functions, | | |
| | | | Mathematical | | |
| | | E WARIT | Modeling of | | |
| | | OF | D.C. Servo | | |
| | | ECE OF ENGI | Motor. | | |
| 5th week | 2 Theoretical + 2 | The student | Mathematical | Theoretical + | quiz |
| | practical | understands the | Modeling of | practical | - |
| | | subject | Physical | - | |
| | 5 | | Systems and | | |
| | - | | Transfer | | |
| | | • S(¥)_ | Functions, | | |
| | | | Mathematical | | |
| | | | Modeling of | | |
| | | | D.C. Servo | | |
| | | | Motor. | | |
| 6th week | 2 Theoretical + 2 | The student | Mathematical | Theoretical + | quiz |
| | practical | understands the | Modeling of | practical | |
| | | subject | Physical | | |
| | | | Systems and | | |
| | | | Transfer | | |
| | | 0047 | Functions, | | |
| | | 2017 | Mathematical | | |
| | | | Modeling of | | |
| | | | D.C. Servo | | |
| | | | Motor. | | |
| 7th week | 2 Theoretical + 2 | The student | Block | Theoretical + | quiz |
| | practical | understands the | Diagrams. | practical | |
| | | subject | | | |
| 8th week | 2 Theoretical $+ 2$ | The student | Block | Theoretical + | quiz |
| | practical | understands the | Diagrams. | practical | |
| | | subject | | | |
| 9th week | 2 Theoretical + 2 | The student | Time Domain | Theoretical + | quiz |
| | practical | understands the | Analysis of | practical | |
| | | subject | Closed Loop | | |
| | | | Control | | |
| | | | 10Systems and | | |
| | | | Error Analysis. | | |
| 10th week | 2 Theoretical + 2 | The student | Time Domain | Theoretical + | quiz |
| | practical | understands the | Analysis of | practical | - |
| | 1.5 | 1.1.1.1.1 | | - | 1 |
| | | subject | Closed Loop | | |

| | | | Systems and | | |
|-----------|--------------------------------|--|--|-------------------------|------|
| | | | Systems and Error Analysis. | | |
| 11th week | 2 Theoretical + 2 practical | The student understands the subject | P, PI, PD, and PID | Theoretical + practical | quiz |
| 12th week | 2 Theoretical + 2 practical | The student understands the subject | Modes of Feedback | Theoretical + practical | quiz |
| 13th week | 2 Theoretical + 2 practical | The student understands the subject | Control, Realization of | Theoretical + practical | quiz |
| 14th week | 2 Theoretical + 2 practical | The student understands the subject | PID Controller Using Active and Passive Elements. | Theoretical + practical | quiz |
| 15th week | 2 Theoretical + 2 practical | The student understands the subject | | Theoretical + practical | quiz |
| 16th week | 2 Theoretical + 2 practical | The student understands the subject | P, PI, PD, and PID | Theoretical + practical | quiz |
| 17th week | 2 Theoretical + 2 practical | The student understands the subject | Modes of Feedback | Theoretical + practical | quiz |
| 18th week | 2 Theoretical + 2 practical | The student understands the subject | Control, Realization of | Theoretical + practical | quiz |
| 19th week | 2 Theoretical + 2 S | The student understands the subject | PID Controller Using Active and Passive Elements. | Theoretical + practical | quiz |
| 20th week | 2 Theoretical + 2 practical | The student understands the subject | Stability Analysis and Rouths Stability Criterion. | Theoretical + practical | quiz |
| 21st week | 2 Theoretical + 2 practical | The student understands the subject | Stability Analysis and Rouths Stability Criterion. | Theoretical + practical | quiz |
| 22nd week | 2 Theoretical + 2 practical | The student understands the subject | Root Locus Technique. | Theoretical + practical | quiz |
| 23rd week | 2 Theoretical + 2 practical | The student nime understands the subject | Root Locus C Technique. | Theoretical + practical | quiz |
| 24th week | 2 Theoretical + 2 practical | The student understands the subject | Analysis of Control | Theoretical + practical | quiz |
| 25th week | 2 Theoretical + 2 practical | The student understands the subject | System in Frequency Domain and Bode Diagrams. | Theoretical + practical | quiz |
| 26th week | 2 Theoretical + 2 practical | The student understands the subject | Analysis of Control | Theoretical + practical | quiz |
| 27th week | 2 Theoretical + 2 practical | The student understands the subject | System in Frequency Domain and | Theoretical + practical | quiz |

| | | | | | - | |
|-----------------------|---|-----------------------|--|--|---|--|
| | | | Bode | | | |
| | | | Diagrams. | | | |
| 28th week | 2 Theoretical + 2 | The student | Control System | Theoretical + | quiz | |
| | practical | understands the | Design Using | practical | | |
| | | subject | Bode | | | |
| | | | Diagrams. | | | |
| 29th week | 2 Theoretical + 2 | The student | Control System | Theoretical + | quiz | |
| | practical | understands the | Design Using | practical | | |
| | | subject | Bode | | | |
| | | | Diagrams. | | | |
| 30th week | 2 Theoretical $+ 2$ | The student | Definitions of | Theoretical + | quiz | |
| | practical | understands the | Non Linear | practical | | |
| | | subject | Systems. | | | |
| 11 Coi | urse Evaluation | | | | | |
| 11. 000 | | | | | | |
| Distributin | g the score out of 1 | 00 according to the | tasks assigned | to the studen | t such as daily | |
| | n, daily oral, month | - | - | | - | |
| | | - | 10) I C F | - | | |
| 12. Lea | rning and Teachi | ng Resources | | | | |
| Poquirod to | wthooke (ourrigular k | vooka if any | K. Warw | ick, An Introduct | ion to Control | |
| Required te | extbooks (curricular b | JOOKS, IL AITY) | Systems, | - 1 | | |
| | | | | vol 9 | | |
| | | | 2nd ed., | VOI. 8 | | |
| Main refere | | OF WAR | | | Engineering, 3rd e | |
| Main refere | nces (sources) | OF WAR | K. Ogata, | , Modern Control | Engineering, 3rd e 7458: PrenticeHall, | |
| Main refere | nces (sources) | 25ITY OF WAR | K. Ogata, | , Modern Control ddle River, NJ 07 | | |
| | , , , | ances (scientific iou | K. Ogata, Upper Sa Inc. , 199 | , Modern Control ddle River, NJ 07 | 7458: PrenticeHall, | |
| | nces (sources) ded books and <mark>re</mark> fer | ences (scientific jou | K. Ogata, Upper Sa Inc. , 199 | , Modern Control ddle River, NJ 07 7. and solutions of | 7458: PrenticeHall, | |
| Recommen | , , , | ences (scientific jou | K. Ogata, Upper Sa Inc., 199 rnals. Problems | , Modern Control ddle River, NJ 07 7. and solutions of | 7458: PrenticeHall, | |
| Recomment reports) | ded books and refer | | K. Ogata, Upper Sa Inc. , 199 rnals, Problems by A. K. | , Modern Control ddle River, NJ 07 7. and solutions of Jairath. | 7458: PrenticeHall, cotrol systems | |
| Recomment reports) | , , , | | K. Ogata, Upper Sa Inc., 199 rnals, Problems by A. K. | , Modern Control ddle River, NJ 07 7. and solutions of Jairath. ghperformancehv | 7458: PrenticeHall, cotrol systems | |
| Recomment reports) | ded books and refer | | K. Ogata, Upper Sa Inc., 199 rnals, Problems by A. K. | , Modern Control ddle River, NJ 07 7. and solutions of Jairath. | 7458: PrenticeHall, cotrol systems | |
| Recomment reports) | ded books and refer | | K. Ogata, Upper Sa Inc., 199 rnals, Problems by A. K. | , Modern Control ddle River, NJ 07 7. and solutions of Jairath. ghperformancehv | 7458: PrenticeHall, cotrol systems | |
| Recomment reports) | ded books and refer | | K. Ogata, Upper Sa Inc., 199 rnals, Problems by A. K. | , Modern Control ddle River, NJ 07 7. and solutions of Jairath. ghperformancehv | 7458: PrenticeHall, cotrol systems | |

