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| **College:** | **College of Engineering** |
| **Programme:** | **Electrical Engineering** |
| **Course:** | **Automatic Control Systems EE 341** |

**Course Report**

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| --- | --- | --- | --- | --- |
| Institution: |  | | Date of CR | 16 / 4 / 1437 H. |
| College/ Department | | College of Engineering / Electrical Engineering | | |

**A Course Identification and General Information**

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1. Course title: | | Automatic Control System | | | | | Code | | | EE 341 | | | Section | | | 593 | | |
| 2. Name of course instructor | | | | Dr. Abdullah Al-Ahmadi | | | | | | | Location : | | | Al-Yehya campus | | | | |
| 3. Year and semester to which this report applies: | | | | | | | | | | 1436-1437, Semester 1 | | | | | | | | |
| 4. Number of students starting the course? | | | | | | 14 | | Students completing the course? | | | | | | | | | 14 |  |
| 5. Course components: | | | | | | | | | | | | | | | | | | |
|  | Lecture | | Tutorial | | Laboratory/  Studio | | | | Practical | | | Other | | | **Total** | | | |
| **Contact**  **Hours** | 45 | | 15 | | ……….. | | | | ……….. | | | ……….. | | | **60** | | | |
| **Credit** | 3 | | 0 | | ……….. | | | | ……….. | | | ……….. | | | **3** | | | |

**B- Course Delivery:**

**1. Coverage of Planned Program**

|  |  |  |  |
| --- | --- | --- | --- |
| **Topics Covered** | **Planned** Contact Hours | **Actual** Contact Hours | **Reason for Variations (\*)** |
| Control Systems- Closed-Loop Control versus Open-Loop Control, Modeling of Dynamic Systems: Transfer Function and Impulse-Response Function | 4 | 8 | ………………………………….. |
| Modeling of Mechanical and Electrical, Fluid and Thermal Systems | 12 | 12 | ………………………………….. |
| Signal Flow Graphs | 4 | 4 | ………………………………….. |
| Transient and Steady-State Response Analyses: First, Second and Higher-Order Systems | 6 | 8 | ………………………………….. |
| Routh's Stability Criterion | 4 | 8 | ………………………………….. |
| Root-Locus Analysis: Root-Locus Plots- Positive-Feedback Systems- Conditionally Stable Systems- Control Systems Design by the Root-Locus Method | 8 | 8 | ………………………………….. |
| Frequency-Response Analysis: Bode Diagrams- Polar Plots- Nyquist Stability Criterion- Stability Analysis- Closed-Loop Frequency Response | 10 | 8 | ………………………………….. |
| Control Systems Design by Frequency Response: Lead Compensation- Lag Compensation- Lag-Lead Compensation | 8 | 0 | ………………………………….. |
| ……………………………………….. | ………. | ……….. | ………………………………….. |

( \* ) if there is a difference of more than 25% of the hours planned

**2. Consequences of Non-Coverage of Topics**

|  |  |  |
| --- | --- | --- |
| Topics not Fully Covered  (if any) | Effected Learning Outcomes | Possible Compensating Action |
| ………………………………. | ………………………………. | ………………………………. |
| ………………………………. | ………………………………. | ………………………………. |
| ………………………………. | ………………………………. | ………………………………. |
| ………………………………. | ………………………………. | ………………………………. |

**3. Course learning outcome assessment.**

| **List course learning outcomes** | | **List methods of assessment for each LO** | **Summary analysis of assessment results for each LO** |
| --- | --- | --- | --- |
| **1.0** | **Knowledge** | | |
| **1.1** | **.....................................................................** | .................. | .................. |
| **1.2** | **.....................................................................** | .................. | .................. |
| **1.3** | **.....................................................................** | .................. | .................. |
| **1.4** | **.....................................................................** | .................. | .................. |
| **1.5** | **.....................................................................** | .................. | .................. |
| **1.6** | **.....................................................................** | .................. | .................. |
| **2.0** | **Cognitive Skills** | | |
| **2.1** | **.....................................................................** | .................. | .................. |
| **2.2** | **An ability to design a system, component, or process to meet desired needs within realistic**  **constraints** | Standardized exams | Suggests new approaches and improves on what has been done before |
| **2.3** | **An ability to identify, formulate, and solve engineering problems** | Standardized exams | Connects theoretical concepts to practical problem-solving when prompted |
| **2.4** | **.....................................................................** | .................. | .................. |
| **2.5** | **.....................................................................** | .................. | .................. |
| **2.6** | **.....................................................................** | .................. | .................. |
| **3.0** | **Interpersonal Skills & Responsibility** | | |
| **3.1** | **An ability to function on multidisciplinary teams** | Micro projects | .................. |
| **3.2** | **.....................................................................** | .................. | .................. |
| **3.3** | **.....................................................................** | .................. | .................. |
| **3.4** | **.....................................................................** | .................. | .................. |
| **3.5** | **.....................................................................** | .................. | .................. |
| **3.6** | **.....................................................................** | .................. | .................. |
| **4.0** | **Communication, Information Technology, Numerical** | | |
| **4.1** |  |  |  |
| **4.2** | **.....................................................................** | .................. | .................. |
| **4.3** | **.....................................................................** | .................. | .................. |
| **4.4** | **.....................................................................** | .................. | .................. |
| **4.5** | **.....................................................................** | .................. | .................. |
| **4.6** | **.....................................................................** | .................. | .................. |
| **5.0** | **Psychomotor** | | |
| **5.1** | **.....................................................................** | .................. | .................. |
| **5.2** | **.....................................................................** | .................. | .................. |
| **5.3** | **.....................................................................** | .................. | .................. |
| **5.4** | **.....................................................................** | .................. | .................. |
| **5.5** | **.....................................................................** | .................. | .................. |
| **5.6** | **.....................................................................** | .................. | .................. |

**Summarize any actions you recommend for improving teaching strategies as a result of evaluations in table 3 above.**

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| ………………………………………………………………………………………………………….………………………………………………………………………………………………………….………………………………………………………………………………………………………….………………………………………………………………………………………………………….…………………………………………………………………………………………………………. |

**4. Effectiveness of Planned Teaching Strategies for Intended Learning Outcomes set out in the Course Specification**

|  |  |  |  |
| --- | --- | --- | --- |
| List Teaching Methods set out in Course Specification | Were They  Effective? | | Difficulties Experienced (if any) in Using the Strategy and Suggested Action to Deal with Those Difficulties. |
| No | Yes |
| Lecture, research activities, lab demonstrations, projects, case studies,  memorization and individual presentation |  | Y | ……………..…………………………. |
| Lecture, small group work, research activities, lab demonstrations, projects  and individual presentation |  | Y | ……………..…………………………. |
| ……………………………………….… |  |  | ……………..…………………………. |
| ……………………………………….… |  |  | ……………..…………………………. |
| ……………………………………….… |  |  | ……………..…………………………. |

**C. Results**

**1. Distribution of Grades**

|  |  |  |  |
| --- | --- | --- | --- |
| Letter  Grade | Number of  Students | Student  Percentage | Analysis of Distribution of Grades |
| **A+** | 2 | 5.26 % | ……………………………………………………….. |
| **A** | 7 | 18.42 % | ……………………………………………………….. |
| **B+** | 5 | 13.15 % | ……………………………………………………….. |
| **B** | 7 | 18.42 % | ……………………………………………………….. |
| **C+** | 8 | 21.05 % | ……………………………………………………….. |
| **C** | 3 | 7.89 % | ……………………………………………………….. |
| **D+** | 2 | 5.26 % | ……………………………………………………….. |
| **D** | 3 | 7.89 % | ……………………………………………………….. |
| **F** | 1 | 2.63 % | ……………………………………………………….. |
|  | …………. | …….. % | ……………………………………………………….. |
| Denied  Entry | 0 | …….. % | ……………………………………………………….. |
| In Progress |  | …….. % | ……………………………………………………….. |
| Incomplete |  | …….. % | ……………………………………………………….. |
| Pass | 37 | …….. % | ……………………………………………………….. |
| Fail | 1 | …….. % | ……………………………………………………….. |
| Withdrawn | 0 | …….. % | ……………………………………………………….. |

**2. Analyze special factors (if any) affecting the results**

|  |
| --- |
| * ……………………………………………………………………………………………… * ……………………………………………………………………………………………… * ……………………………………………………………………………………………… * ……………………………………………………………………………………………… * ……………………………………………………………………………………………… |

**3. Variations from planned student assessment processes (if any).**

a. Variations (if any) from planned assessment schedule (see Course Specifications)

|  |  |
| --- | --- |
| Variation | Reason |
| …………………………………………… | …………………………………………… |
| …………………………………………… | …………………………………………… |
| …………………………………………… | …………………………………………… |

b. Variations (if any) from planned assessment processes in Domains of Learning

|  |  |
| --- | --- |
| Variation | Reason |
| …………………………………………… | …………………………………………… |
| …………………………………………… | …………………………………………… |
| …………………………………………… | …………………………………………… |

**4. Student Grade Achievement Verification:**

|  |  |
| --- | --- |
| Method(s) of Verification | Conclusion |
| …………………………………………… | …………………………………………… |
| …………………………………………… | …………………………………………… |
| …………………………………………… | …………………………………………… |

**D. Resources and Facilities**

|  |  |
| --- | --- |
| Difficulties in access to resources  or facilities (if any) | Consequences of any difficulties experienced for student learning in the course |
| …………………………………………… | …………………………………………… |
| …………………………………………… | …………………………………………… |
| …………………………………………… | …………………………………………… |

**E. Administrative Issues**

|  |  |
| --- | --- |
| Organizational or administrative difficulties encountered (if any) | Consequences of any difficulties experienced for student learning in the course |
| …………………………………………… | …………………………………………… |
| …………………………………………… | …………………………………………… |
| …………………………………………… | …………………………………………… |

**F. Course Evaluation**

**1. Student evaluation of the course (Attach summary of survey results)**

|  |
| --- |
| a. List the most important recommendations for improvement and strengths   * ……………………………………………………………………………………………… * ……………………………………………………………………………………………… * ……………………………………………………………………………………………… * ……………………………………………………………………………………………… |
| b. Response of instructor or course team to this evaluation   * ……………………………………………………………………………………………… * ……………………………………………………………………………………………… * ……………………………………………………………………………………………… * ……………………………………………………………………………………………… |

**2. Other Evaluation:**

|  |
| --- |
| a. List the most important recommendations for improvement and strengths   * ……………………………………………………………………………………………… * ……………………………………………………………………………………………… * ……………………………………………………………………………………………… * ……………………………………………………………………………………………… |
| b. Response of instructor or course team to this evaluation:   * ……………………………………………………………………………………………… * ……………………………………………………………………………………………… * ……………………………………………………………………………………………… * ……………………………………………………………………………………………… |

**G Planning for Improvement**

**1. Progress on actions proposed for improving the course in previous course reports (if any).**

|  |  |  |  |
| --- | --- | --- | --- |
| Actions recommended  from the most recent course report(s) | Actions Taken | Action Results | Action Analysis |
| 1. More copies of the textbook | No actions were taken | ………………… | ………………… |
| 1. Visual materials should be provided. | No actions were taken | ………………… | ………………… |
| 1. Instructor manual | No actions were taken | ………………… | ………………… |
| 1. ………………………… | ……………… | ………………… | ………………… |

**2. List what other actions have been taken to improve the course**

|  |
| --- |
| * ……………………………………………………………………………………………… * ……………………………………………………………………………………………… * ……………………………………………………………………………………………… * ……………………………………………………………………………………………… |

**3. Action Plan for Next Semester/Year**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Actions Recommended for Further Improvement | Intended Action Points  (should be measurable) | Start  Date | Completion  Date | Person Responsible |
| 1. The course contents in the course syllabus and course specification do not match |  | Beginning of Semester 2 | End of Semester 2 | UPC |
| 1. Course objectives are not listed in the course description file | ………………………… | Beginning of Semester 2 | End of Semester 2 | UPC |
| 1. Course outcomes are not listed in the course description file | ………………………… | Beginning of Semester 2 | End of Semester 2 | UPC |
| 1. The SLOs in the syllabus should be rewritten | ………………………… | Beginning of Semester 2 | End of Semester 2 | UPC |
| 1. The course contents are very long and cannot be covered in one semester | ………………………… | Beginning of Semester 2 | End of Semester 2 | ……..… |
| 1. The official textbook is not available. |  |  |  |  |
| 1. The SLOs for this course should be changed in the SLO assessment app. |  |  |  |  |

**Course Instructor:**

|  |  |  |  |
| --- | --- | --- | --- |
| Name: | Dr. Abdullah Al-Ahmadi | | |
| Signature: | ............................. | Date Report Completed: | 16/04/1437 H |

**Program Coordinator:**

|  |  |  |  |
| --- | --- | --- | --- |
| Name: | Dr. Abdullah Almohaisen | | |
| Signature: | ............................. | Date Received : | ....../…../1437 H |

**Important Notes :**

* A separate Course Report (CR) should be submitted for every course and for each ( section " Male & Female" or Academic Programme or campus location where the course is taught ) even if the course is taught by the same person
* Each CR is to be completed by the course instructor (Separate reports attached) and given to the program coordinator At the end of each course
* Course Reports are to discuss by the academic (Programme) Department Council