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| **College:** | **College of Engineering** |
| **Programme** | **Electrical Engineering** |
| **Course:** | **Analog & Digital Measurements**  **EE 307** |

**Course Report**

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| --- | --- | --- | --- | --- |
| Institution: | Majmaah University | | Date of CR | 22/05/2017 |
| College/ Department | | College of Engineering / Electrical Engineering Department | | |

**A Course Identification and General Information**

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1. Course title: | | Analog and Digital Measurements | | | | | Code | | | EE 307 | | | | Section | | 430 | | |
| 2. Name of course instructor: | | | | Dr. Muhammad Zubair | | | | | | | Location: | | Yahya Campus | | | | | |
| 3. Year and semester to which this report applies: | | | | | | | | | | 2016/2017 First Semester | | | | | | | | |
| 4. Number of students starting the course? | | | | | | 9 | | Students completing the course? | | | | | | | | | 8 |  |
| 5. Course components: | | | | | | | | | | | | | | | | | | |
|  | Lecture | | Tutorial | | Laboratory/  Studio | | | | Practical | | | Other | | | **Total** | | | |
| **Contact**  **Hours** | 45 | | 15 | | 0 | | | | 0 | | | 0 | | | **60** | | | |
| **Credit** | 3 | | 0 | | 0 | | | | 0 | | | 0 | | | **3** | | | |

**B- Course Delivery:**

**1. Coverage of Planned Program**

|  |  |  |  |
| --- | --- | --- | --- |
| **Topics Covered** | **Planned** Contact Hours | **Actual** Contact Hours | **Reason for Variations (\*)** |
| Introduction | 4 | 2 | 2 hours are enough |
| Measurement Fundamentals | 4 | 4 | No Variations |
| Measurement Errors and Statistical analysis | 4 | 4 | No Variations |
| Measurement units and standards | 4 | 2 | 2 hours are enough |
| DC indicating Meters | 4 | 6 | Topic required more time than 4 hours. |
| AC indicating Meters | 4 | 4 | No Variations |
| Ohmmeter | 4 | 4 | No Variations |
| Oscilloscope | 4 | 2 | Time limitations due to short semester |
| Amplifiers and differences | 4 | 4 | No Variations |
| Attenuators. | 4 | 4 | Topic required more time than 4 hours. |
| Transducers, Sensors. | 4 | 4 | No Variations |
| Spectrum analyzer. | 4 | 1 | Time limitations due to short semester |
| Digital measurements (Digital voltmeter). | 4 | 1 |
| Liquid Crystal Displays (LCD) | 4 | 1 |
| Grounding shielding and noise. | 4 | 1 |

( \* ) 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 |
| Spectrum analyzer. | c | EE 308 Lab |
| Oscilloscope | c | EE 308 Lab |
| Digital measurements (Digital voltmeter). | c | EE 308 Lab, EE 360, EE 361 |
| Liquid Crystal Displays (LCD) | e | EE 360, EE 361 |
| Grounding shielding and noise. | e | EE 360, EE 361 |

**3. Course learning outcome assessment.**

| **List course learning outcomes**  **By the end of the course, the student will be able to:** | | **List methods of assessment for each LO** | **Summary analysis of assessment results for each LO** |
| --- | --- | --- | --- |
| **a** | *Evaluate error by statistical approach.* | Examination, quiz, assignments | 77.8 %  File Attached |
| *Evaluate error by statistical approach of analog and digital measurement systems* |
| **c** | *Design analog and digital meters within realistic constraints* | Examination, quiz, assignments | 88.9 %  File Attached |
| *Develop solution using attenuators and difference and instrumentation amplifiers to minimize the loading effects and insertion losses of analog and digital meters* |
| *Use electrical engineering tools like analog and digital meters, oscilloscopes and spectrum analyzer.* |
| *Apply engineering principles of grounding for hazards protection and shielding to minimize the noise.* |
| **e** | *Piece together sensors, amplifier and attenuator, data conversion principles and digital readouts like LCD, to form a measurement system.* | Examination, quiz, assignments | 77.8 %  File Attached |

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

|  |
| --- |
|  |

**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, debate, small group work, whole group and small group discussion, research  activities, projects, debates, role playing, case studies, memorization and individual presentation |  | x | All of these teaching strategies were helpful to complete the outcomes of the course. |
| lab demonstrations | x |  | A separate lab course is present in the program so lab demonstration should be removed from the teaching strategies of this course. |
|  |  |  |  |
|  |  |  |  |

**C. Results**

**1. Distribution of Grades**

|  |  |  |  |
| --- | --- | --- | --- |
| Letter  Grade | Number of  Students | Student  Percentage | Analysis of Distribution of Grades |
| **A+** | 2 | 22.22 % | The result is within good normal distribution. |
| **A** | 1 | 11.11 % |
| **B+** | 1 | 11.11 % |
| **B** | 1 | 11.11 % |
| **C+** | 0 | 0 % |
| **C** | 1 | 11.11 % |
| **D+** | 1 | 11.11 % |
| **D** | 1 | 11.11 % |
| **F** | 1 | 11.11 % |
| Denied  Entry | 0 | 0 |  |
| In Progress | 0 | 0 |  |
| Incomplete | 0 | 0 |  |
| Pass | 8 | 88.88 % |  |
| Fail | 1 | 11.11 % |  |
| Withdrawn | 0 | 0 |  |

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

|  |
| --- |
| None |

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

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

|  |  |
| --- | --- |
| Variation | Reason |
| Micro project and case study were cancelled | The semester was cut short |
| Mid Term II was not held | The semester was cut short |
|  |  |

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

|  |  |
| --- | --- |
| Variation | Reason |
| None |  |
|  |  |
|  |  |

**4. Student Grade Achievement Verification:**

|  |  |
| --- | --- |
| Method(s) of Verification | Conclusion |
| Internal grades verification reviewer | Reviewed |
| Grades approved by Head of department and the dean of the College of Engineering | Approved |
| Microsoft Excel and Edugate are used for verifications of sum. | Verified |

**D. Resources and Facilities**

|  |  |
| --- | --- |
| Difficulties in access to resources  or facilities (if any) | Consequences of any difficulties experienced for student learning in the course |
| Textbook and reference books are not available in University Library. | Students relay on the presentations provided by the instructor which hinder self-learning process of students. |
|  |  |
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**E. Administrative Issues**

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| --- | --- |
| Organizational or administrative difficulties encountered (if any) | Consequences of any difficulties experienced for student learning in the course |
| None |  |
|  |  |
|  |  |

**F. Course Evaluation**

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

|  |
| --- |
| a. List the most important recommendations for improvement and strengths   * No recommendations |
| b. Response of instructor or course team to this evaluation   * NA |

**2. Other Evaluation:**

|  |
| --- |
| a. List the most important recommendations for improvement and strengths   * None |
| b. Response of instructor or course team to this evaluation:  N/A |

**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 |
| More interactive approaches should be implemented in giving the lectures to enhance the learning of students. | Interactive learning techniques were used in class | Students were more confident in linking prerequisites of course with course contents. | Evaluation analysis of SLO is above benchmark. |
|  |  |  |  |

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

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| --- |
| * Forced the students to use internet recourses for selection of proper sensor for a specific application. * Encouraged students to use simulation software. |

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

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| --- | --- | --- | --- | --- |
| Actions Recommended for Further Improvement | Intended Action Points  (should be measurable) | Start  Date | Completion  Date | Person Responsible |
| Continuation of interactive approaches | Case study will be implemented | Sep 2017 | Dec 2017 | Course Instructor |
| The course description is incomplete, missing objectives, learning outcomes etc. | Modify the Course Description file. | Sep 2017 | Dec 2017 | UPC |
| The course objectives in the course description need to be modified according to specifications | Modify the Course Description file. | Sep 2017 | Dec 2017 | UPC |
| The textbook and reference books should be available in university library for instructor and students. | Buy textbook and reference books for Library. | Sep 2017 | Dec 2017 | UPC / QC |

**Course Instructor:**

|  |  |  |  |
| --- | --- | --- | --- |
| Name: | Dr. Muhammad Zubair | | |
| Signature: |  | Date Report Completed: | 22/5/2017 |

**Program Coordinator:**

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| --- | --- | --- | --- |
| Name: |  | | |
| Signature: |  | Date Received: | 22/5/2017 |

**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