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### ATTACHMENT 2 (g)

### Course Report

**Kingdom of Saudi Arabia**

**The National Commission for Academic Accreditation & Assessment**

**COURSE REPORT**

**(CR)**

A separate Course Report (CR) should be submitted for every course and for each section 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 at the end of each course and given to the program coordinator

A combined, comprehensive CR should be prepared by the course coordinator and the separate location reports are to be attached.

**Course Report**

**For guidance on the completion of this template refer to the NCAAA handbooks or the NCAAA Accreditation System help buttons.**

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| Institution Faculty of Science Date of Course Report  |
| College/ Department Mathematics Department |

1. **Course Identification and General Information**

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| 1. Course title : Mathematical Methods Code Math 326 Section: 436 |
| 2. Name of course instructor Dr. Khaled El Sayed El Helow Location  |
| 3. Year and semester to which this report applies.1435 second semester |
| 4. Number of students starting the course? 28 Students completing the course? 25 |
| 5. Course components (actual total contact hours and credits per semester):

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Credit | Contact Hours | Self-Study | Other | Total |
| Lecture | Tutorial | Laboratory | Practical |
| 4 | 45 | 15 |  |  | 75 | 18 | 153 ch |

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1. **- Course Delivery**

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| 1. Coverage of Planned Program |
| Topics Covered | Planned Contact Hours | Actual Contact Hours | Reason for Variations if there is a difference of more than 25% of the hours planned |
| Series Solutions of Ordinary differential equations with variable coefficients- Inner product space of functions. . Improper integrals and its properties | 8 | 8 |  |
| Bessel function and its properties,. .Gamma and Beta functions , the relation between them and their properties | 8 | 8 |  |
| Orthogonal polynomials and special functions( Legender, Hermite,).Studing the generalized theory of Fourier series - Fourier integral | 12 | 12 |  |
| Laplace transformations and its proofs | 8 | 8 |  |
| Inverse Laplace transformation | 12 | 12 |  |
| Solution of differential equations with its initial and boundary conditions using Laplace transforms | 12 | 12 |  |

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| 2. Consequences of Non Coverage of Topics For any topics where the topic was not taught or practically delivered, comment on how significant you believe the lack of coverage is for the course learning outcomes or for later courses in the program. Suggest possible compensating action.  |
| Topics (if any) not Fully Covered | Effected Learning Outcomes | Possible Compensating Action |
| None |  |  |
|  |  |  |

**3. Course learning outcome assessment.**

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| --- | --- | --- | --- |
|  | **List course learning outcomes** | **List methods of assessment** | **Summary analysis of assessment results** |
| **1** | Define the fundamental in basic mathematics such as: Mathematics logic, mathematical induction, sets, functions, relations, groups, rings, field and partial fractions.  | ExamsMidtermsFinal examination | Excellent |
| **2** | Outline the logical thinking.  | Home work.  | good |
| **3** | State the physical problems by mathematical method. | Continuous discussions with the students during the lectures. | good |
| **4** | The students will explain and interpret a general knowledge of important mathematical concepts. | Midterm examsQuizzes. | very good |
| **5** | Enable students to analyses the mathematical problems. | Doing homework.Check the problems solution. | above average  |
| **6** | Student's ability to write physical equations in a correct mathematical way. | Discussion of how to simplify or analyses some problems. | good  |
| **7** | The student should illustrate how take up responsibility.  | Quizzes of some previous lectures.Ask the absent students about last lecture. | weak |
| **8** | Must be shown the ability of working independently and with groups.  | Discussion during the lecture. | average |
| **9** | The student should illustrate how to communicating with: Peers, Lecturers and Community.  | Discussing a group work sheets.  | above average  |
| **10** | The student should interpret how to Know the basic mathematical principles using the internet.  | Discuses with them the results of computations analysis and problem solutions. | good |
| **11** | The student should appraise how to Use the computer skills and library | Give homework's to know how the student understands the numerical skills. | average  |
| **12** | The student should illustrate how to Search the internet and using software programs to deal with problems.  | Give them comments on some resulting numbers.  |  |

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| 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. (Refer to planned teaching strategies in Course Specification and description of Domains of Learning Outcomes in the National Qualifications Framework)** |
| **List Teaching Methods set out in Course Specification** | Were theseEffective? | **Difficulties Experienced (if any) in Using the Strategy and Suggested Action to Deal with Those Difficulties.** |
| No | Yes |
| Solving Series Solutions of Ordinary differential equations with variable coefficients- Inner product space of functions. Studying the Improper integrals and its properties.. Studying Bessel function and its properties.Studying Gamma and Beta functions , the relation between them and their properties... Have the knowledge of Orthogonal polynomials and special functions( Legender, Hermite,).Studing the generalized theory of Fourier series - Fourier integral.Studying Laplace transformations and Inverse Laplace transformation.Learning the Solution of differential equations using Laplace transforms |  | √ |  |
| Provide **main ways to deal with the exercises.** |  | √ |  |
| Solve **some examples during the lecture.**  |  | √ |  |
| Encourage **the student to look for some complicated problems in the different references.**  |  | √ |  |
| Ask **the student to attend lectures for practice solving problem.** |  |  |  |
| **Homework assignments.** |  | √ |  |
| **Ask the students to search the internet and use the library.****Encourage them how to attend lectures regularly by assigning marks for attendance.**  |  | √ |  |
| **Teach them how to cover missed lectures.****Give students tasks of duties** |  | √ |  |
| **Creating working groups with peers to collectively prepare: solving problems and search the internet for some topics.** | √ |  |  |
| **Give the students tasks to measure their: mathematical skills, computational analysis and problem solving.** |  | √ |  |
| **Encourage the student to ask for help if needed.** |  | √ |  |
| **Encourage the student to ask good question to help solve the problem.** |  | **√** |  |

**Note:** In order to analyze the assessment of student achievement for each course learning outcome, student performance results can be measured and assessed using a KPI, a rubric, or some grading system that aligns student work, exam scores, or other demonstration of successful learning.

**C. Results**

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| **1. Distribution of Grades**

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| --- | --- | --- | --- |
| **Letter****Grade** | **Number of****Students** | **Student****Percentage** | **Explanation of Distribution of Grades** |
| **A** | 2 | 8 % | **90-100** |
| **B** | 3 | 12 % | **80-89** |
| **C** | 4 | 16 % | **70-79** |
| **D** | 10 | 40. % | **60-69** |
| **F** | 6 | 24% | **< 60** |
| **Denied****Entry** |  |  |  |
| **In Progress** |  |  |  |
| **Incomplete** |  |  |  |
| **Pass** |  | 76% |  |
| **Fail** |  | 24 % |  |
| **Withdrawn** |  | **0 %** |  |

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

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| 3. Variations from planned student assessment processes (if any) (see Course Specifications).  |
| a. Variations (if any) from planned assessment schedule (see Course Specification) |
| Variation | Reason |
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| b. Variations (if any) from planned assessment processes in Domains of Learning (see Course Specification) |
| Variation | Reason |
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| 4. Student Grade Achievement Verification (eg. cross-check of grade validity by independent evaluator). |
| Method(s) of Verification | Conclusion |
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**D. Resources and Facilities**

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| **1. Difficulties in access to resources or facilities (if any)****Not Available**  | **2. Consequences of any difficulties experienced for student learning in the course.** |

**E. Administrative Issues**

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| **1 Organizational or administrative difficulties encountered (if any)****None** | **2. Consequences of any difficulties experienced for student learning in the course.** |

**F Course Evaluation**

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| 1 Student evaluation of the course (Attach survey results report)  |
| a. List the most important recommendations for improvement and strengths |
| b. Response of instructor or course team to this evaluation |
| 2. Other Evaluation (e.g. by head of department, peer observations, accreditation review, other stakeholders) |
| a. List the most important recommendations for improvement and strengths |
| b. Response of instructor or course team to this evaluation |

**G. Planning for Improvement**

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| 1. Progress on actions proposed for improving the course in previous course reports (if any). |
| Actions recommendedfrom the most recent course report(s) | Actions Taken |  Results |  Analysis |
| a. |  |  |  |
| b. |  |  |  |
| c. |  |  |  |
| d. |  |  |  |

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| 2. List what actions have been taken to improve the course (based on previous CR, surveys, independent opinion, or course evaluation). |

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| 3. Action Plan for Improvement for Next Semester/Year  |
| Actions Recommended  | Intended Action Pointsand Process | StartDate | CompletionDate | Person Responsible |
| a. |  |  |  |  |
| b. |  |  |  |  |
| c. |  |  |  |  |
| d. |  |  |  |  |
| e. |  |  |  |  |

**Name of Course Instructor: Dr. Khaled El Sayed El HElow**

**Signature: Dr. Khaled El Helow Date Report Completed:**

**Program Coordinator: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Signature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date Received: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**