**Course description form**

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| 1. **Course Name** | | | | | | | | |
| Mathematics II | | | | | | | | |
| 1. **Course Code** | | | | | | | | |
| E102 | | | | | | | | |
| 1. **Semester/Year** | | | | | | | | |
| Spring Semester/First Year | | | | | | | | |
| 1. **The date this description was prepared** | | | | | | | | |
| 17 / 9 / 2023 | | | | | | | | |
| 1. **Available forms of attendance** | | | | | | | | |
| Face-to-Face theoretical lectures | | | | | | | | |
| 1. **Number of study hours (total) / number of units (total)** | | | | | | | | |
| 125/3 | | | | | | | | |
| 1. **Name of the course administrator** | | | | | | | | |
| Name: Lect. Ali Sachit Email: | | | | | | | | |
| 1. **Course objectives** | | | | | | | | |
| * To study and solve integrations with various methods. * Complex number and its applications. * Hyperbolic functions and its inverse. * Vectors and its applications. * Conic sections and its applications. | | | | **Objectives of the study subject** | | | | |
| 1. **Teaching and learning strategies** | | | | | | | | |
|  Weekly lectures included providing students with the basics and topics related to the pre-skills education outcomes to solve practical problems through presentation, lecture, or conducting experiments.   Solve a group of practical and applied examples by faculty members.   Through discussion, students participate in solving some practical problems.   Practical laboratories in the department are monitored by faculty members in the department.   Asking the student to visit the library and the international information network (the Internet) to obtain additional knowledge of the academic subjects.  Giving a seminar to the student in front of his fellow students to enhance his self-confidence. | | | **The Strategy** | | | | | |
| 1. **Course structure** | | | | | | | | |
| **Evaluation method** | **Learning method** | **Required learning outcomes** | | | **Name of the unit or topic** | | **Hours** | **Week** |
| Weekly & monthly tests+ assignments+ seminars | Lectures | Integration | | | Indefinite Integral , Theorems, Definite Integral , Properties | | 4 | 1 |
| Weekly & monthly tests+ assignments+ seminars | Lectures | Integration | | | Integration of Trigonometric and Inverse Trigonometric Functions, Integration of Exponential and Logarithmic Functions | | 4 | 2 |
| Weekly & monthly tests+ assignments+ seminars | Lectures | Integration and transcendental functions | | | Integration and transcendental functions (hyperbolic and inverse hyperbolic functions) | | 4 | 3 |
| Weekly & monthly tests+ assignments+ seminars | Lectures | Numerical integration | | | Introduction, trapezoidal rule and Simpson’s rule | | 4 | 4 |
| Weekly & monthly tests+ assignments+ seminars | Lectures | Methods of Integration | | | Integration by Parts, Integration by Partial Fractions, | | 4 | 5 |
| Weekly & monthly tests+ assignments+ seminars | Lectures | Methods of Integration | | | Integration by Substitution Integration by Quadratic complement, | | 4 | 6 |
| Weekly & monthly tests+ assignments+ seminars | Lectures | Methods of Integration | | | Integration by t=tan (x) substitution, Integration by t=tan (x/2) substitution | | 4 | 7 |
| Weekly & monthly tests+ assignments+ seminars | Lectures | Application of the Definite Integral | | | Area Under The Curve, Area Between Two Curves | | 4 | 8 |
| Weekly & monthly tests+ assignments+ seminars | Lectures | Application of the Definite Integral. | | | VOLUMES , IMPROPER INTEGRALS | | 4 | 9 |
| Weekly & monthly tests+ assignments+ seminars | Lectures | Application of definite integrals | | | Length of curve in the plane, Area of surface of revolution | | 4 | 10 |
| Weekly & monthly tests+ assignments+ seminars | Lectures | Application of definite integrals | | | Center of mass, moment of inertia | | 4 | 11 |
| Weekly & monthly tests+ assignments+ seminars | Lectures | Application of definite integrals | | | Area by polar coordinates | | 4 | 12 |
| Weekly & monthly tests+ assignments+ seminars | Lectures | Matrix. | | | Definition, matrix algebra | | 4 | 13 |
| Weekly & monthly tests+ assignments+ seminars | Lectures | Matrix | | | Determinant of matrix, Grammar’s rule | | 4 | 14 |
| Weekly & monthly tests+ assignments+ seminars | Lectures | Matrix | | | Inverse of matrix, Gauss Elimination Method | | 4 | 15 |
| 1. **Course Evaluation** | | | | | | | | |
| Distribution of the grade out of 100 according to the tasks assigned to the student, such as daily preparation, daily, oral, monthly, written exams, reports, etc. | | | | | | | | |
| 1. **Learning and teaching resources** | | | | | | | | |
| **Calculus, Early Transcendentals by Anton.** | | | | | | Required textbooks (methodology, if any) | | |
| **Calculus and Analytic Geometry by Thomas.** | | | | | | Main references (sources) | | |
|  | | | | | | Recommended supporting books and references (scientific journals, reports....) | | |
|  | | | | | | Electronic references, Internet sites | | |