

Calculus 1

Syllabus Number

1A201

Basic Major Subjects

Requisites 2 credit

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1. Course Description

Single variable calculus is described, which is composed of the following: derivative, increase and decrease of function, local maximum and local minimum of function, real-valued continuous functions, derivatives of fraction and composite functions, derivatives of some functions, mean value theorem, secondary derivatives, derivatives of inverse function, derivatives of parametric representation function, derivatives of local limit in indeterminate form, Taylor series, antiderivatives in some functions, definite integral, fundamental theorem of calculus, area, volume, curves length, and improper integral. In this course, you will acquire knowledge on Diploma Policy 3,4.

2. Course Objectives

Students can solve the fundamental matters of calculus by understanding special subjects such as thermodynamics, material dynamics, mechanical mechanics, fluid dynamics, etc.

3. Grading Policy

Grades will be evaluated by intermediate assignment (60%), final assignment (40%).

4. Textbook and Reference

Textbook

Textbook : Mathematical differential integral of engineering (2nd edition), Yoshihiro Tashiro, MoriKita Publishing, ISBN:978-4-627-04932-1.

5. Requirements(Assignments)

We will take attendance every time. Attendance of 2/3 or more is required to acquire the unit of lecture.

6. Note

7. Schedule

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| [1] | Differential of single variable : Derivative |
| [2] | Differential of single variable : Increase / Decrease of function, Maximal / Minimal |
| [3] | Differential of single variable : Function continuity |
| [4] | Differential of single variable : Derivative of the quotient, Derivative of composite function |
| [5] | Differential of single variable : Derivatives of various functions |
| [6] | Differential of single variable : Mean value theorem, Second derivative |
| [7] | Differential of single variable : Derivative of inverse function |
| [8] | Differential of single variable : Derivatives of parametric functions, Limit value of indeterminate form |
| [9] | Differential of single variable : Taylor's expansion |
| [10] | Integral of single variable : Indefinite integral |
| [11] | Integral of single variable : Indefinite integral of various functions |
| [12] | Integral of single variable : Definite integral |
| [13] | Integral of single variable : Basic theorem of calculus |
| [14] | Integral of single variable : Area, Volume, Curve length, Improper integral |
| [15] | Test, summary |