

(2022.08.31)

00 students, ?? staffs, 2 coaches, 1 professor

44212507 HE, Xin 何 鑫 (CN)    object deformation reproduction  
44222301 TU, Chenyu 屠 宸宇 (CN)    mobile robot path planning

#### Feature

- + **Active learning** 能動的学修
- + **Flipped classroom** 反転授業

#### Requirement

- + **PC** (screen/display, *earphone/headphone*, *camera*, microphone, etc.)
- + **Communication environment** (high-speed, large-capacity, etc.)

#### Procedure of each one lecture of RBT (robotics)

<<1/3>> **Pre-learning** 事前学習

<<2/3>> **Classwork** 授業

<<3/3>> **Post-learning** 事後学習

#### Schedule

- [00] 2022/09/28. 00. Course guidance.
- [01] 2022/10/05. 01. What is robot?
- [02] 2022/10/12. 02. Robot history.
- [03] 2022/10/19. 03. Robot configuration.
- [04] 2022/10/26. 04. Robot mechanism.
- [05] 2022/11/02. 09. Basic principles of manipulator: vector approach for kinetics (1).
- [06] 2022/11/09. 10. Basic principles of manipulator: vector approach for kinetics (2).
- [07] 2022/11/16. 11. Basic principles of manipulator: vector approach for kinetics (3).
- [--] 2022/11/23. National holiday.
- [08] 2022/11/30. 12. Basic principles of manipulator: vector approach for kinetics (4).
- [09] 2022/12/07. 05. Actuator.
- [10] 2022/12/14. 06. Sensor (part I).
- [11] 2022/12/21. 07. Sensor (part II).
- [--] 2022/12/28. Winter break.
- [--] 2023/01/04. Winter break.
- [12] 2023/01/11. 08. Reduction drive and Design of driving section.
- [13] 2023/01/18. 13. Manipulator control (1).
- [14] 2023/01/25. 14. Manipulator control (2).
- [15] 2023/02/01. Summary and Total discussion.

#### Score

- 1) **Assignment report** 課題報告書
- 2) **Supplement report** 追加報告書
- 3) Others

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Example in [01] 2022/10/05. 01. What is robot?  
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<<1/3>> **Pre-learning** 事前学習

using Waseda Moodle.

from 2022/09/28 (Wed) 10h30 to 2022/10/05 (Wed) 09h00. --- about 1 week

**(01) Materials** 資料

Access the PDF and read it carefully while watching videos and taking notes.

**R01-01, R01-11, R01-21, R01-31, R01-41**

Videos explaining the contents of the PDF.

Students must watch them one by one.

**(01) Assignment report** 課題報告書

Prepare your assignment report while studying, exploring, considering, and so on.

Download the DOC or TXT, use it to write into your answer, and upload it before the lecture time.

Title, given/submitted date, ID number and Family-Given name.

The layered section structure with leading words, following the instructions.

Up to 20 files and total 50M byte.

- 2022RbtExampleAssignment.doc/txt
- Reference PDF files

Format:

- Electric file in A4 format.
  - First line: Title (RBT (01) assignment), Given & Submitted dates (in y/m/d).
  - Second line: ID number, Full name.
  - Third line and followings: Your own answers.
- The body text must be in professional style.
  - Sections / Items well-organized with appropriate Titles / Headings / Leading words.
  - Divided into significant paragraphs, consisting of simple sentences.
  - Line-space, side margin, etc. to make it easy to read for others.
  - References listed in order at the end (of each section) with [num.] in body text.

Time limit: Received until the beginning of the next class.

<Aim>

1. Find out for yourself.
2. Think by yourself.
3. Express with yourself.

There is no correct answer. There is no perfect answer.

**(01) Assignment PDF**

The questions of the assignment report are described in the PDF, which you can access after watching all videos.

**(01) Discussion** 議論交流

If you have something to discuss while pre-learning, classwork, and post-learning, please let us know to share and talk with.

It is available until the deadline for submitting **(01) Supplement report** 追加報告書.

<Reason>

You may not be the single one who has the same question. Please share to discuss.

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<<2/3>> **Classwork** 授業

using Waseda Moodle and Zoom meeting (therefore, PC and communication environment are required).

during class hour from 09h00 to 10h30, 2022/10/05 (Wed).

**(01) Zoom meeting** ズーム会議

Open Zoom meeting,

Displaying participants name as "ID number, Family name, Given name".

- (1) Greeting and short talk.
- (2) Grouping, breakout room with about five students.
- (3) Group work at breakout room, GW (about 20 min).
- (4) Coming back to main room, report by each reporter, and discussions.
- (5) Closing.

**(01) Attendance** 出欠入力

Check your attendance.

**(01) Group work** グループワーク

Move to breakout room.

Read the PDF file posted, and start talks and discussions among students.

<Aim>

Presenter: Devise to convey what you want to inform in a short time.

Learn new things and others' viewpoint from questions and comments.

Audiences: Incorporate the other's good points into yourself and correct your missing.

Study from listening, writing, discussing, and so on.

Download the DOC or TXT as a worksheet in **(01) Supplement report**.

Title, given/submitted date, ID number and Family-Given name.

Supplement sheet should be constructed well-organized tree structure consists of sections, titles, leading words, and explanations, with figures and tables if necessary.

1. Detail of own group work:

1.1. Group number and member list (indicating chair and reporter):

- #1 ID 00000000, Full name
- #2 ID 00000000, Full name
- #3 ID 00000000, Full name
- #4 ID 00000000, Full name
- #5 ID 00000000, Full name

1.2. Topic title and Details of group discussion:

2. Outline of other groups' conclusions:

- Group-1:
- Group-2:
- Group-3:
- Group-4:
- Group-5:

**[Caution]** Screenshots can be cut and pasted only for figures. However, you will need to reconstruct the information obtained from the presentations of other students in your own words and create an original text to explain your understanding. (You need to report your own learning outcomes in the lecture, not a simple and superficial copy, so screenshots of the text are not graded).

<Aim>

Inform the activities and results of the Group work during the class hours.

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<<3/3>> **Post-learning** 事後学習

using Waseda Moodle

from 2022/10/05 (Wed) 10h30 to 2022/10/06 (Thu) 09h00. --- about 24 hours

**(01) Supplement report** 追加報告書

Up to 20 files and total 50M byte.

- 2022RbtExampleSupplement.doc/txt
- Reference PDFs

Revise and update the DOC or TXT as a worksheet in **(01) Supplement report**.

Section structure with leading words following the instructions.

3. Summary of learning outcomes:

--- study contents and understandings.

4. Comments and opinions:

--- about this section / chapter.

<Aim>

Present what you have learned through your total study activities.

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Trial in [00] 2022/09/28. 00. Course guidance.  
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<<1/3>> **Pre-learning** 事前学習

~~(00) Materials 資料~~

~~— Access the PDF and read it carefully while watching videos and taking notes.—~~

~~**R01-01, R01-11, R01-21, R01-31, R01-41**~~

~~— Videos explaining the contents of the PDF.—~~

~~— Students must watch them one by one.—~~

~~(00) Assignment report 課題報告書~~

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~~— Title, given/submitted date, ID number and Family-Given name.—~~

~~— The layered section structure with leading words, following the instructions.—~~

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~~— 2022BicExampleAssignment.doc/txt—~~

~~— Reference PDF files~~

~~Format:~~

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~~<Aim>~~

~~— 1. Find out for yourself. — 2. Think by yourself. — 3. Express with yourself.—~~

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during class hour from 09h00 to 10h30, 2022/09/28 (Wed).

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Speaker: Devise to convey what you want to inform in a short time.

Learn new things and others' viewpoint from questions and answers.

Audiences: Incorporate the other's good points into yourself and correct your missing.

Learn anything on writing, presentation, discussion, and so on.

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<Aim>

Inform the activities and results of the Group work during the class hours.

10 min.

09h40-09h50 Prepare contents to present/discuss

If you have some time, please add some pictures to explain.

15 min.

09h50-10h05 Introduce your hometown

Sharing your screen by using zoom function.

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<<3/3>> **Post-learning** 事後学習

using Waseda Moodle

from 2022/10/04 (Tue) 10h30 to 2022/10/05 (Wed) 09h00. --- about 24 hours

**(00) Supplement report** 追加報告書

Up to 20 files and total 50M byte.

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- Reference PDFs

Revise and update the DOC or TXT as a worksheet in **(01) Supplement report**.

Section structure with leading words following the instructions.

3. Summary of learning outcomes:  
--- study contents and understandings.
4. Comments and opinions:  
--- about this section / chapter.

<Aim>

Present what you have learned through your total study activities.

[EOF]