

## 2024 AUTUMN QUARTER

Here is to certify that Yanzhe Zhao has attended the course: Robotic Manipulation from October 11th 2024 to January 5th 2025.

### OFFICIAL TRANSCRIPT

Program	Professor	Class Period	Grade
Robotic Manipulation	Adam Spiers	10/11/2024~01/05/2025	95.70

The curriculum design of the course focuses on drawing lessons from the educational concepts of both General Education and Research-Based Learning of world-class universities.



Professor: Adam Spiers

Home Institution: Imperial College London

GRADE	EQUIVALENT PERCENTAGES	GRADE	EQUIVALENT PERCENTAGES
A+	90-100	C+	67-69
A	85-89	C	63-66
A-	80-84	C-	60-62
B+	77-79	D+	57-59
B	73-76	D	53-56
B-	70-72	D-	50-52

**Other Grading Information:** Nonacademic Credit=Attended, Audited.

For more information visit <https://student.neoscholar.com/#/passport/login> and go to the Course details-Grade page in the Classroom Section.

**Please note:** The course syllabus and outlines are strictly in consistent with professor's home institutions. All lectures and readings are in English and all students works are also performed in English. Academy consistency is therefore maintained in accordance with the academic requirements at their respective colleges.



### ISSUED TO:

Name: Yanzhe Zhao

Student ID: 3023006059\*

Class Period: 54 class hours

\*Transcript valid only if bearing the Professor's Signature.

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# Robotic Manipulation

2024 ITSTP

## Basic Information

Course Title	Robotic Manipulation
Instructor	Ad Spiers, lecturer in Robotics and Machine Learning, Imperial College London
Prerequisites	Undergraduate courses in dynamics, control, or robotics are highly encouraged. Students should be familiar with programming(Matlab)
Required Text & Tools	Reading materials will be assigned as the course progresses.
Grading Criteria	10% Participation 40% Homework 50% Exam (Mid-term & Final Assignment)
Course Key Words	Computer Science, Robotics, Mechanical Engineering, Control Systems, Dynamics, Component Manufacturing, Machine Design

## Schedule

No.	Topics
Lecture 1	Introduction to Robotics
Lecture 2	Mathematically Representing Robots
Lecture 3	Kinematic Control
Lecture 4	Trajectory Planning
Lecture 5	Jacobians and Singularities
Lecture 6	Robot Grippers
Lecture 7	Dynamic Control
Lecture 8	Robot Control Algorithms
Lecture 9	Machine Learning in Robotics
Lecture 10	Designing, Building and Simulating Robots