

# Course Outline

## 605.613: Introduction to Robotics

This outline provides an overview of the course and assignments by week. Please remember to check the calendar for specific due dates. Each course module runs for a period of seven (7) days, i.e., one week. Unless otherwise noted in Blackboard, due dates for assignments are the last day of the module week. It is recommended that you complete the readings and lectures at the beginning of each module week, then quickly jump into the discussion forum and problem set for that week.

Module	Dates	Module Title	Assignments
<b>Module 1</b>	Tue 01/20/26– Mon 01/26/26	Robotic Operating Systems	<ul style="list-style-type: none"><li>• Student Introductions</li><li>• Assignment 1</li></ul>
<b>Module 2</b>	Tue 01/27/26– Mon 02/02/26	Coordinate Systems	<ul style="list-style-type: none"><li>• Module 2 Discussion</li><li>• Assignment 2</li></ul>
<b>Module 3</b>	Tue 02/03/26– Mon 02/09/26	Kinematic Chains and Manipulators	<ul style="list-style-type: none"><li>• Module 3 Discussion</li><li>• Assignment 3</li></ul>
<b>Module 4</b>	Tue 02/10/26– Mon 02/16/26	Robotic Vehicle Kinematics	<ul style="list-style-type: none"><li>• Module 4 Discussion</li><li>• Assignment 4</li><li>• Mid-term Project Assigned</li></ul>
<b>Module 5</b>	Tue 02/17/26– Mon 02/23/26	Controls	<ul style="list-style-type: none"><li>• Module 5 Discussion</li><li>• Mid-term milestone (vehicle simulator node)</li></ul>
<b>Module 6</b>	Tue 02/24/26– Mon 03/02/26	Sensors	<ul style="list-style-type: none"><li>• Module 6 Discussion</li><li>• Mid-term Project Due</li></ul>
<b>Module 7</b>	Tue 03/03/26– Mon 03/09/26	Obstacle Avoidance	<ul style="list-style-type: none"><li>• Module 7 Discussion</li><li>• Group Project 1 – Robots in Gazebo</li><li>• Final Project Assigned</li></ul>
<b>Module 8</b>	Tue 03/10/26– Mon 03/16/26	Discrete Space Path Planning	<ul style="list-style-type: none"><li>• Module 8 Discussion</li><li>• Assignment 5</li></ul>
<b>Module 9</b>	Tue 03/24/26– Mon 03/30/26	Sample-based Path Planning	<ul style="list-style-type: none"><li>• Module 9 Discussion</li><li>• Final Project milestone (planning with an existing map)</li></ul>
<b>Module 10</b>	Tue 03/31/26– Mon 04/06/26	State-Estimation	<ul style="list-style-type: none"><li>• Module 10 Discussion</li><li>• Assignment 6</li></ul>
<b>Module 11</b>	Tue 04/07/26– Mon 04/13/26	Localization	<ul style="list-style-type: none"><li>• Module 11 Discussion</li><li>• Group Project 2 – 2D Localization</li></ul>
<b>Module 12</b>	Tue 04/14/26– Mon 04/21/26	Simultaneous localization and app	<ul style="list-style-type: none"><li>• Module 12 Discussion</li><li>• Assignment 7</li></ul>
<b>Module 13</b>	Tue 04/22/26– Tue 05/05/26	Robotic Learning	<ul style="list-style-type: none"><li>• Module 13 Discussion</li><li>• Final Project Due</li></ul>

