

Introduction to Robotics - Choate Summer Programs 2022 Assignment Sheet

Dates	Assignment	Description	Files or Materials Needed	Due Date
Week 1 6/27-7/3	Introduction Form	Fill out the introduction form on Canvas	Link on Canvas	6/27/22
	Onshape Tutorials #1-4	Complete Onshape tutorials #1-4	https://onshape4frc.com/getting-started	7/4/22
	Engineering Notebook Week #1	Log your progress in your engineering notebook for each class day. Submit a digital version of your notebook on Canvas	NA	7/4/22
Week 2 7/4-7/10	Onshape Tutorials #4-6	Complete Onshape tutorials #5-6	https://onshape4frc.com/getting-started	7/11/22
	Engineering Notebook Week #2	Log your progress in your engineering notebook for each class day. Submit a digital version of your notebook on Canvas	NA	7/11/22
Week 3 7/11-7/17	Engineering Notebook Week #3	Log your progress in your engineering notebook for each class day. Submit a digital version of your notebook on Canvas	NA	7/18/22
Week 4 7/18-7/24	Engineering Notebook Week #4	Log your progress in your engineering notebook for each class day. Submit a digital version of your notebook on Canvas	NA	7/25/22
Week 5 7/25-7/28	Engineering Notebook Week #5	Log your progress in your engineering notebook for each class day. Submit a digital version of your notebook on Canvas	NA	7/28/22
	Finish final class projects			

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Lesson Schedule

Week	Day	Lessons/Tasks
Week 1 6/27-7/3	Monday	Go over course expectations; go over Canvas page; have class introduce selves and pronouns; tour of shop; shop safety rules; make Onshape accounts
	Tuesday	Introduction to 2011 FRC game; 2011 2D sketch example; discuss scope and constraints of project; students assigned project teams (2-3 students per team); begin brainstorming and sketching ideas for 2011 robots with team members
	Wednesday	CAD Lesson #1 Intro to 2D sketching – sketch side view of scoring rack field element from 2011 FRC Game – Logomotion based on dimensions given in game manual and field drawings; continue brainstorming and sketching ideas for 2011 robots with team members
	Thursday	Begin creating a wooden prototype for intaking inner tubes off the floor with project team
	Friday	Continue creating a wooden prototype for intaking inner tubes off the floor with project team
	Saturday	Continue creating a wooden prototype for intaking inner tubes off the floor with project team
Week 2 7/4-7/10	Monday	Finish prototype with team and test
	Tuesday	CAD Lesson #2 Intro to 2D sketching– sketch side view of 7407’s 2022 robot drivetrain in same sketch from lesson #1; continue prototype work as needed
	Wednesday	CAD Lesson #3 Intro to 2D sketching – sketch inner tube on floor, use variable dimensions to create a roller claw arm that pivots on robot, sketch inner tube in claw; experiment with dimensions and alternative designs with team to begin mechanism design process
	Thursday	Begin designing mechanism in CAD with team
	Friday	CAD work with team
	Saturday	CAD work with team

Week 3 7/11-7/17	Monday	CAD Lesson #4 – Transforming 2D Sketches to 3D Parts – learn how to use Part Studios to extrude parts based on 2D sketches; CAD work with team
	Tuesday	3D Printing Lesson #1 – Airwolf & Markforged; CAD work with team
	Wednesday	CAD Lesson #5 – Making a CAD assembly of mechanism; CAD work with team
	Thursday	CAD to CAM to CNC Lesson #1 - Plates; CAD work with team; begin manufacturing parts
	Friday	CAD to CAM to CNC Lesson #2 – Tubes; CAD work with team; manufacture parts
	Saturday	Finalize CAD with team, manufacture parts
Week 4 7/18-7/24	Monday	Manufacture parts; assembly work as parts ready
	Tuesday	Manufacture parts; assembly work as parts ready
	Wednesday	Manufacture parts; assembly work as parts ready
	Thursday	Finish manufacturing parts; assembly work as parts ready
	Friday	Assembly, testing & Iteration
	Saturday	Assembly, testing & Iteration
Week 5 7/25-7/28	Monday	Assembly, testing & Iteration
	Tuesday	Assembly, testing & Iteration
	Wednesday	Final testing & iteration
	Thursday	End of class celebration