

**CS450HO – Robotic Design & Fabrication Honors
Assignment Sheet
C Block**

Dates	Assignment	Description	Files or Materials Needed	Due Date
Week 1 9/7-9/11	Introduction Form	Fill out the introduction form on Canvas	Link on Canvas	9/8/22
	Onshape Tutorials #1-2	Complete Onshape tutorials #1-2	https://onshape4frc.com/getting-started	9/12/22
	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	9/12/22
Week 2 9/12-9/18	Onshape Tutorials #3-4	Complete Onshape tutorials #3-4	https://onshape4frc.com/getting-started	9/19/22
	NASA RAP Guide Reading & Reflection Questions Set #1	Read RAP Design Guide Section 2.1-2.38 (pages 10-30), answer reflection questions in PPT and complete machining activities in PPT	NASA RAP Guide Reflection Questions PPT (files on Canvas)	9/19/22
	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	9/19/22
Week 3 9/19-9/25	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	9/28/22
	NASA RAP Guide Reading & Reflection Questions Set #2	Read RAP Design Guide Section 3 (pages 31-56), answer reflection questions in PPT	NASA RAP Guide Reflection Questions PPT (files on Canvas)	9/28/22

Week 4 9/26-10/2	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	10/3/22
	NASA RAP Guide Reading & Reflection Questions #3 Part 1	Read RAP Design Guide Section 4.1-4.5 (pages 57-75), answer reflection questions in PPT	NASA RAP Guide Reflection Questions PPT (files on Canvas)	10/3/22
Week 5 10/3-10/9	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	10/10/22
	NASA RAP Guide Reading & Reflection Questions #3 Part 2	Read RAP Design Guide Section 4.6-4.7 (pages 76-97), answer reflection questions in PPT	NASA RAP Guide Reflection Questions PPT (files on Canvas)	10/10/22
Week 6 10/10-10/16	Engineering Notebook Week #6	Log your progress in your engineering notebook for each class day. Submit a digital version of your notebook on Canvas	NA	10/17/22
	NASA RAP Guide Reading & Reflection Questions #4 Part 1	Read RAP Design Guide Section 5.1 (pages 99-122), answer reflection questions in PPT	NASA RAP Guide Reflection Questions PPT (files on Canvas)	10/17/22
Week 7 10/17-10/23	Engineering Notebook Week #7	Log your progress in your engineering notebook for each class day. Submit a digital version of your notebook on Canvas	NA	10/24/22
	NASA RAP Guide Reading & Reflection Questions #4 Part 2	Read RAP Design Guide Section 5.2-5.4 (pages 122-139), answer reflection questions in PPT	NASA RAP Guide Reflection Questions PPT (files on Canvas)	10/24/22
Week 8 10/24-10/30 Fall Long Weekend 10/30-11/1	Engineering Notebook Week #8	Log your progress in your engineering notebook for each class day. Submit a digital version of your notebook on Canvas	NA	11/4/22
	NASA RAP Guide Reading & Reflection Questions #4 Part 3	Read RAP Design Guide Section 5.5-5.8 (pages 140-169), answer reflection questions in PPT	NASA RAP Guide Reflection Questions PPT (files on Canvas)	11/4/22

Week 9 10/31-11/6 <i>Fall Long Weekend</i> 10/30-11/1	Engineering Notebook Week #9	Log your progress in your engineering notebook for each class day. Submit a digital version of your notebook on Canvas	NA	11/7/22
Week 10 11/7-11/13	Engineering Notebook Week #10	Log your progress in your engineering notebook for each class day. Submit a digital version of your notebook on Canvas	NA	11/14/22
Week 11 11/14-11/18	Final Engineering Notebook Reflection Assignment	Answer final reflection questions in engineering notebook. Submit a digital version of your notebook on Canvas.	See Canvas for final questions	11/18/22
	Final Report	Submit final technical report on term project. See rubric for full details.	Report rubric (file on Canvas)	11/18/22
	Technical Design Poster	Submit final technical design poster on term project. See rubric for full details.	Poster rubric (file on Canvas)	11/18/22

Introduction to Robotics - Choate Summer Programs 2022
Lesson Schedule

Week	Day	Lessons/Tasks
Week 1 9/7-9/11	Wednesday *30 min classes*	Go over course expectations; go over Canvas page; have class introduce selves and pronouns; tour of shop; shop safety rules
	Thursday *Special Schedule*	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
Week 2 9/12-9/18	Monday	Begin prototyping with team
	Wednesday	Work on prototype
	Friday	Work on prototype
Week 3 9/19-9/25	Monday	Work on prototype
	Wednesday	Work on prototype
	Friday	Finish prototypes
Week 4 9/26-10/2	Monday	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
	Wednesday	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
	Friday	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
Week 5 10/3-10/9	Monday	CAD work with team
	Wednesday	CAD work with team
	Friday	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

Week 6 10/10-10/16	Monday	CAD work with team
	Wednesday	CAD work with team
	Friday	CAD Lesson #5 – Making a CAD assembly of mechanism; CAD work with team
Week 7 10/17-10/23	Monday	CAD work with team
	Wednesday	CNC Lesson #1 – Downloading Fusion 360 and getting education license; how to create a setup, how to create bores and contours for plastics
	Friday	CAD/CNC work with team
Week 8 10/24-10/30 <i>Fall Long Weekend</i> 10/30-11/1	Monday	CAD/CNC Work
	Wednesday	No Class
	Friday	CNC Lesson #2 – Creating bores, contours and pockets in aluminum; cutting tubes CNC/CAD work with team
Week 9 10/31-11/6 <i>Fall Long Weekend</i> 10/30-11/1	Monday	No Class
	Wednesday	CNC Work
	Friday	CNC Work
Week 10 11/7-11/13	Monday	CNC Work, Final Assembly, Iteration & Testing
	Wednesday	CNC Work, Final Assembly, Iteration & Testing
	Friday	CNC Work, Final Assembly, Iteration & Testing
Week 11 11/14-11/18	Monday	Final Assembly, Iteration & Testing
	Wednesday	Final Assembly, Iteration & Testing
	Friday	End of class celebration