Work Breakdown Structure

Costante	0
	100.0

1.0 Problem Definition (6.0)

	1.0	6.0

- **Clarify Project** — 1.1 / 1.0
- **Conduct Research** — 1.2 / 3.0
  - Client Needs — 1.2.1 / 0.5
  - Prior Designs — 1.2.2 / 1.5
  - Safety Regulations — 1.2.3 / 1
- **Design Objectives** — 1.3 / 2.0
  - Design Constraints — 1.3.1 / 1.5
  - Review w/ customer — 1.3.2 / 0.5

2.0 Project Management (4.0)

	2.0	4.0

- **Weekly Meetings** — 2.1 / 2.0
- **Scheduling** — 2.2 / 0.5
- **Monitor Progress** — 2.3 / 0.5
- **Meeting w/ team and supervisor** — 2.4 / 0.5
- **Placing Orders** — 2.5 / 0.5

3.0 Function Requirements (5.0)

	3.0	5.0

- **Brainstorm Functions** — 3.1 / 1.0
- **Functional Analysis** — 3.2 / 4.0
  - Black Box Functions — 3.2.1 / 0.5
  - Identifying Functions — 3.2.2 / 0.5
  - Functions Means Tree — 3.2.3 / 1.0
  - Functional Specification — 3.2.4 / 2.0

4.0 Conceptual Design (15.0)

	4.0	15.0

- **Generate Concepts** — 4.1 / 7.0
  - Brainstorm Ideas — 4.1.1 / 4.0
  - List Feasible Concepts — 4.1.2 / 1.0
- **Evaluate Concepts** — 4.2 / 5.0
  - Weight Objectives — 4.2.1 / 2.0
  - Pairwise Comparison — 4.2.2 / 2.0
  - Review w/ Supervisor — 4.2.3 / 1.0
- **Select Concept** — 4.3 / 3.0

5.0 Detailed Design (15.0)

	5.0	15.0

- **Mechanical Design** — 5.1 / 6.5
  - 3D CAD Model — 5.1.1 / 4.0
  - Fabrication Drawing — 5.1.2 / 2.5
- **Electronics Design** — 5.2 / 6.5
  - Digital Circuit Schematics — 5.2.1 / 4.0
  - PCB Design — 5.2.2 / 2.5
- **Software** — 5.3 / 2.0
  - C Programming — 5.3.1 / 2.0

6.0 Prototype Fabrication (35.0)

	6.0	35.0

- **Fabrication** — 6.1 / 20.0
  - 3D Printing — 6.1.1 / 10.0
  - Assembly — 6.1.2 / 10.0
- **Electrical Casing** — 6.2 / 15.0
  - Heat Testing — 6.2.1 / 15.0

7.0 Testing (10.0)

	7.0	10.0

- **Mechanical** — 7.1 / 4.0
  - Installation — 7.1.1 / 2.0
  - Sleeve Comfortability — 7.1.2 / 2.0
- **Electrical** — 7.2 / 4.0
  - Sensors — 7.2.1 / 2.0
  - Battery Life — 7.2.2 / 2.0
- **Software** — 7.3 / 2.0
  - Controls — 7.3.1 / 2.0

8.0 Documentation (10.0)

	8.0	10.0

- **Test Plan** — 8.1 / 3.0
  - Project Management — 8.1.1 / 4.0
- **User Manual** — 8.2 / 3.0
- **Final Report** — 8.3 / 4.0

MSE 411 Capstone Design Project II
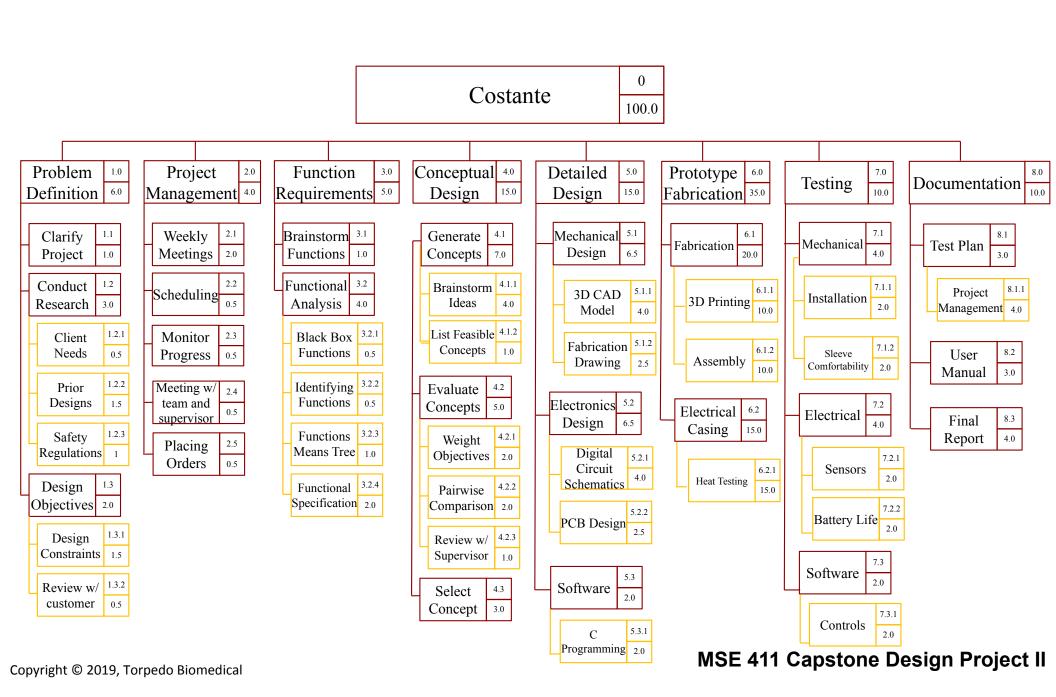
Linear Responsibility Chart	Anahita Mahmoodi	Erik Seidelmann	Raaj Chatterjee	Dr. Amr Marzouk (Supervisor)
1.0 Understand Customer Requirements	1	1	1	3
1.1 Clarify Problem Statement	1	1	1	5
1.2 Conduct Research	2	2	1	4
1.3 Develop Objectives Tree	1	1	1	4
1.3.1 Draft Objectives Tree	1	1	1	4
1.4 Establish Project Plan	3	1	3	2
2.0 Analyze Function Requirements	1	1	1	3
3.0 Generate Alternatives	5	5	1	5
4.0 Evaluate Alternatives	1	1	1	4
4.1 Weigh Objectives	3	1	3	4
4.2 Develop Test Protocol	4	4	1	4
4.3 Conduct Tests	1	2	2	6
4.3 Report Test Results	1	2	2	5
5.0 Select Preferred Design	1	1	1	6
6.0 Document Design Results	1	1	1	5
6.1 Design Specifications	1	1	1	6
6.1.1 Hardware Specifications	1	2	2	5
6.1.2 Electrical Specifications	4	1	4	6
6.1.3 Software Specifications	1	3	1	6
6.2 Define Documentation	2	1	2	5
6.3 Draft Final Report	1	1	1	5
6.5 Final Report	2	2	2	4
7.0 Project Management	2	4	1	4
7.1 Weekly Meetings	1	1	1	4
7.2 Develop Project Plan	4	1	4	4
7.3 Track Progress	2	2	1	6
7.4 Progress Reports	1	1	1	5

KEY
1 = Primary Responsibility
2 = Support/Work
3 = Light Consultation
4 = Heavy Consultation
5 = Review
6 = Final Approval

TASK	PROGRESS	START	END
Initial Prototyping			
Secondary Design Review	100%	5-1-19	5-15-19
Component Selection	100%	5-15-19	5-29-19
Ordering and Shipping	50%	5-20-19	5-30-19
Prototype Assembly	0%	5-31-19	6-4-19
Prototype Safety Testing	0%	6-4-19	6-11-19
Prototype Functional	0%	6-4-19	6-11-19
Prototype Iteration			
Prototype Design Review	0%	6-11-19	6-18-19
Electrical Design Revisions	0%	6-18-19	6-25-19
Mechanical Design	0%	6-18-19	6-25-19
Embedded Design Revision	0%	6-21-19	6-28-19
Design Finalization			
Component Reselection	0%	6-28-19	7-5-19
PCB Design and Ordering	0%	7-2-19	7-12-19
Re-Ordering and Shipping	0%	7-5-19	7-12-19
Final Assembly	0%	7-12-19	7-16-19
Final Testing	0%	7-16-19	7-23-19
Bug Fixing	0%	7-23-19	7-29-19

Timeline header: May 6, 2019 | May 13, 2019 | May 20, 2019 | May 27, 2019 | Jun 3, 2019 | Jun 10, 2019 | Jun 17, 2019 | Jun 24, 2019 | Jul 1, 2019 | Jul 8, 2019 | Jul 15, 2019 | Jul 22, 2019 | Jul 29, 2019 | Aug 5, 2019 | Aug 12, 2019 | Aug 19, 2019