QFD ME 476C Human Powered Vehicle Competition Project

HPVC

Areas for user input are in yellow
Clear matrices (yellow areas only) before beginning

Roof Matrix

Braking Distance (within 8m)											
Limit Actuating Systems		++									
Minimum of 3 wheels		+	+								
Seat-to-pedal distance (50cm adjustability range)		--	-	-							
Volume (< 5.2m^3)		--	-	+	+						
Center of mass (within 1m from ground)		-	-	--	-	+					
Gear ratio (3:1 or 4:1 typically seen in bicycles)		-	++	+	-	-	-				
Turn radius (within 8m)		--	-	-	-	-	-	+			
Tensile strength		-	-	+	-	-	-	-	-		
Weight (< 45kg)		++	-	+	-	-	-	--	-	++	
PHASE I QFD	**Preferred (up or down)**	-	+	+	+	-	-	-	-	++	

Engineering Requirements (How)

	Customer Needs (What)	**Customer Weights (1-5)**	Braking Distance (within 8m)	Limit Actuating Systems	Minimum of 3 wheels	Seat-to-pedal distance (50cm adjusta	Volume (< 5.2m^3)	Center of mass (within 1m from gro	Gear ratio (3:1 or 4:1 typically seen	Turn radius (within 8m)	Tensile strength	Weight (< 45kg)
Performance	Safety	5	9	3	6	3		6		6	6	6
	Ease of operation	4	6	6	6	6	1		1	6		
	Operational age (5-13 years)	5		3		6	3	3		3		
	Stability	4		6	9	3	3	6	3	6	3	6
	Educational	3			3						3	
Product	Transportable	3					9	3			1	9
	Rollover protection	5			6		3	9		3	6	3
	Manufacturability	3		3	6		1		3		9	1
	Absolute Technical Importance (ATI)		69	87	147	81	76	123	25	108	111	99
	Relative Technical Importance (RTI)		5%	7%	12%	6%	6%	10%	2%	9%	9%	8%
	Unit of Measure		m		#	cm	m^3	m	#	m	Mpa	kg
	Techical Target		< 8		3	45<d<95	< 5.2	< 1	4:1	< 8	250<S<575	< 45