

Skill name

Mobile Robotics

Criteria

Mark

A	Work Organization & Management	10.00
B	Communication and Interpersonal skills	10.00
C	Design	25.00
D	Fabrication & Assembly	5.00
E	Core Programming, Testing & Adjustment	20.00
F	Performance Review and Commission	30.00
G		
H		
I		

Sub Criteria ID	Sub Criteria Name or Description	Aspect Type M = Meas J = Judg	Aspect - Description	Judg Score
A1	Co-operative Behaviour with Compatriot Team Member on C1	M	Co-operative Behaviour with Compatriot Team Member on C1	
		M	Co-operative Behaviour with Compatriot Team Member on C2	
		M	Co-operative Behaviour with Compatriot Team Member on C3	
		M	Co-operative Behaviour with Compatriot Team Member on C4	
A2	Team Space Condition	J	Team Space Condition on C1	0 1 2 3
		J	Team Space Condition on C2	0 1

A3	Time Management	J	Team Space Condition on C3	2 3 0 1 2 3
		J	Team Space Condition on C4	0 1 2 3
		M	Adherence to schedules on C1	
		M	Adherence to schedules on C2	
A4	Robot Assembly C1	M	Adherence to schedules on C3	
		M	Adherence to schedules on C4	
		M	Competition Robot Assembly / Build is completed On Time	
Sub Criteria ID	Sub Criteria Name or Description	Aspect Type M = Meas J = Judg	Aspect - Description	Judg Score
B1	Communication and Interpersonal Skills	J	Review of the Engineering Journal Frame / Structural Section	0 1 2 3
B2	Communication and Interpersonal Skills	J	Review of the Engineering Journal Wiring Section	0 1 2 3
B3	Communication and Interpersonal Skills			

B4	Communication and Interpersonal Skills	J	Review of the Engineering Journal Mobility Management Section	0 1 2 3
		J	Review of the Engineering Journal Object Management Section	0 1 2 3
B5	Communication and Interpersonal Skills	J	Review of the Engineering Journal Computer Programming Section	0 1 2 3
		J	Review of the Engineering Journal Computer Programming Section	0 1 2 3
Sub Criteria ID	Sub Criteria Name or Description	Aspect Type M = Meas J = Judg	Aspect - Description	Judg Score
C1	Information Gathering Systems Performance	M M M M M M M	A Flat Plate is brought into the Sensor Field and the Robot must A Flat Plate with a Black Tape Line on it is brought into the Sensor Field A Stripped Ball is brought into the Camera's Field of View and the Robot must A Solid Ball is brought into the Camera's Field of View and the Robot must A Cue Ball is brought into the Camera's Field of View and the Robot must A Black and White Parent Grid Pattern is brought into the Camera's Field of View and the Robot must	
C2	Basic Robot Movement	M M M	The Robot at least complete a 1 M Forwards movement in the Opposite direction The Robot at least complete a 1 M Backwards movement in the Opposite direction The Robot at least complete a Full 360 degree rotation while remaining in the Opposite direction	
C3	Object Management System	M M M	The Robot is placed in a position of the Team's choosing relative to the starting position The Robot is placed in a position of the Team's choosing relative to the starting position The Robot is placed in a position of the Team's choosing relative to the starting position	

C4	Performance Related Additional Spending	M	The Robot is placed in a position of the Team's choosing relative	
		M	The Robot is placed in a position of the Team's choosing relative	
		M	The Robot is placed in a position of the Team's choosing relative	
		M	The Robot Design involves a substantial to excessive additional cost	
		M	The Robot Design involves a moderate additional cost to the client	
		M	The Robot Design involves a minimal additional cost to the client	
		M	The Robot Design involves NO additional cost to the client factor	
Sub Criteria ID	Sub Criteria Name or Description	Aspect Type M = Meas J = Judg	Aspect - Description	Judg Score
D1	Wiring	J	Wiring installation meets Industry Standards for secure / safe ins	0 1 2 3
D2	Robot Frame	J	Frame Assembly meets Industry Standards for fit and alignment	0 1 2 3
D3	Object Management System Structural Elements	J	Object Management System meets Industry Standards for fit and	0 1 2 3

Sub Criteria ID	Sub Criteria Name or Description	Aspect Type M = Meas J = Judg	Aspect - Description	Judg Score
E1	Mobility Management: Safety Light	M	The Robot's operational Safety Light Performance	
E2	Mobility Management: Movement in a Confined Space	M	Robot travels the length of the Reception Area and Exits through the Reception Area	
E3	Mobility Management: Movement in a Confined Space	M	Robot travels the length of the Reception Area and Exits through the Reception Area	
E4	Mobility Management: Movement in an Open Space	M	Robot travel through the Open Playground Floor from the Playground Floor to the Reception Area	
E5	Mobility Management: Movement in an Open Space	M	Robot travel through the Open Playground Floor from the Playground Floor to the Reception Area	
E6	Mobility Management: Conducting an Open Space	M	Robot travel through the Open Playground Floor from the Playground Floor to the Reception Area	
E7	Mobility Management: Conducting an Open Space	M	Robot travel through the Open Playground Floor from the Playground Floor to the Reception Area	
E8	Mobility Management: Conducting a Sand Area	M	Robot travel through the Open Playground Floor from the Playground Floor to the Reception Area	
E9	Mobility Management: Conducting a Sand Area	M	Robot travel through the Open Playground Floor from the Playground Floor to the Reception Area	
E10	Mobility Management: Moving the Robot to Designated Position	M	Robot successfully positions itself in front of THE Designated Position	
E11	Mobility Management: Moving the Robot to Designated Position	M	Robot successfully positions itself in front of THE Designated Position	
Sub Criteria ID	Sub Criteria Name or Description	Aspect Type M = Meas J = Judg	Aspect - Description	Judg Score
F1	Teleoperation Performance Review Test Run 1	M	Total Number of Children the Robot took Possession of	
		M	Total Number of Children that have been Delivered INTO the Reception Area	
		M	Total Number of Children that have been Delivered INTO the CO	
F2	Teleoperation Performance Review Test Run 2			

F3	Teleoperation Performance Review Test Run 3	M	Total Number of Children the Robot took Possession of	
		M	Total Number of Children that have been Delivered INTO the Rec	
		M	Total Number of Children that have been Delivered INTO the CO	
F4	Autonomous Performance Review Test Run 4	M	Total Number of Children the Robot took Possession of	
		M	Total Number of Children that have been Delivered INTO the Rec	
		M	Total Number of Children that have been Delivered INTO the CO	
F5	Autonomous Performance Review Test Run 5	M	Total Number of Children the Robot took Possession of	
		M	Total Number of Children that have been Delivered INTO the Rec	
		M	Total Number of Children that have been Delivered INTO the CO	
F6	Autonomous Performance Review Test Run 6	M	Total Number of Children the Robot took Possession of	
		M	Total Number of Children that have been Delivered INTO the Rec	
		M	Total Number of Children that have been Delivered INTO the CO	
Sub Criteria ID	Sub Criteria Name or Description	Aspect Type M = Meas J = Judg	Aspect - Description	Judg Score
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Extra Aspect Description (Meas or Judg) OR Judgement Score Description (Judg only)	Requirement or Nominal Size (Measurement Only)	WSSS Section	Max Mark
Mobile Robotics is a Team Competition	0 or 1	1	0.50
Mobile Robotics is a Team Competition	0 or 1	1	0.50
Mobile Robotics is a Team Competition	0 or 1	1	0.50
Mobile Robotics is a Team Competition	0 or 1	1	0.50
		1	1.00
Workspace is consistently in a state of disarray: multiple to			
Workspace is consistently in a moderate state of organiza			
Workspace is consistently in a good state of organization:			
Workspace is consistently in an excellent state of organiza			
		1	1.00
Workspace is consistently in a state of disarray: multiple to			
Workspace is consistently in a moderate state of organiza			

Criterion A Total Mark 10.00

Workspace is consistently in a good state of organization: Workspace is consistently in an excellent state of organization		1	1.00
Workspace is consistently in a state of disarray: multiple tools Workspace is consistently in a moderate state of organization: Workspace is consistently in a good state of organization: Workspace is consistently in an excellent state of organization		1	1.00
Workspace is consistently in a state of disarray: multiple tools Workspace is consistently in a moderate state of organization: Workspace is consistently in a good state of organization: Workspace is consistently in an excellent state of organization			
Time management is an on-going requirement. Competitor 0 or 1		1	0.90
Time management is an on-going requirement. Competitor 0 or 1		1	0.90
Time management is an on-going requirement. Competitor 0 or 1		1	0.90
Time management is an on-going requirement. Competitor 0 or 1		1	0.90
Time management is an on-going requirement. Competitor 0 or 1		1	0.40
Extra Aspect Description (Meas or Judg) OR Judgement Score Description (Judg only)	Requirement or Nominal Size (Measurement Only)	WSSS Section	Max Mark
Incoherent content organization, lacking in detail and content Coherent content organization, adequate in detail and content Very Coherent content organization, more than adequate in detail and content Exceptionally Coherent content organization, Superior in detail and content		2	2.00
Incoherent content organization, lacking in detail and content Coherent content organization, adequate in detail and content Very Coherent content organization, more than adequate in detail and content Exceptionally Coherent content organization, Superior in detail and content		2	2.00

Criterion B Total Mark 10.00

Incoherent content organization, lacking in detail and content		2	2.00
Coherent content organization, adequate in detail and content			
Very Coherent content organization, more than adequate in detail and content			
Exceptionally Coherent content organization, Superior in detail and content			
Incoherent content organization, lacking in detail and content		2	2.00
Coherent content organization, adequate in detail and content			
Very Coherent content organization, more than adequate in detail and content			
Exceptionally Coherent content organization, Superior in detail and content			
Incoherent content organization, lacking in detail and content		2	2.00
Coherent content organization, adequate in detail and content			
Very Coherent content organization, more than adequate in detail and content			
Exceptionally Coherent content organization, Superior in detail and content			
Extra Aspect Description (Meas or Judg) OR Judgement Score Description (Judg only)	Requirement or Nominal Size (Measurement Only)	WSSS Section	Max Mark
Distance Sensor Performance: The Robot Backs Up or pe	0 or 1	3	1.00
IR Tape Line Sensor Performance: The Robot Backs Up d	0 or 1	3	1.00
Camera Recognition of a Stripped Ball: The Robot Backs	0 or 1	3	1.00
Camera Recognition of a Solid Ball: The Robot Backs Up	0 or 1	3	1.00
Camera Recognition of a Cue Ball: The Robot Backs Up d	0 or 1	3	1.00
Camera Recognition of a Black and White Parent Grid Pa	0 or 1	3	1.00
Straight Line in a Forward Direction: The Robot moves Fo	0 or 1	3	1.00
Straight Line in a Backwards Direction: The Robot moves	0 or 1	3	1.00
360 Degree Rotation within a 600 by 600 mm space: The	0 or 1	3	1.00
The Object Management System functioning in Autonomo	0 or 1	3	1.50
Competitors position their Robot in front of a Reception Ar	0 or 1	3	1.50
The Object Management System operated by a Competit	0 or 1	3	1.50

Criterion C Total Mark 25.00

The Object Management System operated by a Competitor	0 or 1	3	1.50
The Object Management System operated by a Competitor	0 or 1	3	1.50
The Object Management System operated by a Competitor	0 or 1	3	1.50
Economy of the Robot Design relative to the Potential End Use			
ZERO marks awarded if the cost of additional performance is not met	0 or 1	3	1.75
ZERO marks awarded if the cost of additional performance is not met	0 or 1	3	1.75
ZERO marks awarded if the cost of additional performance is not met	0 or 1	3	1.75
ZERO marks awarded if the cost of additional performance is not met	0 or 1	3	1.75
Extra Aspect Description (Measure or Judge) OR Judgement Score Description (Judge only)	Requirement or Nominal Size (Measurement Only)	WSSS Section	Max Mark
Wire placement is poorly organized. Multiple wires are loose.		4	2.00
Wire placement is reasonably organized. Minimal wires are loose.			
Wire placement is very well organized. No wires are loose.			
Wire placement is exceptionally well organized. No wires are loose.			
Overall Robot Frame is poorly organized. Multiple structural elements are loose.		4	1.50
Overall Robot Frame is reasonably well organized. A minimum of 2 structural elements are loose.			
Overall Robot Frame is very well organized. No structural elements are loose.			
Overall Robot Frame is exceptionally well organized. No structural elements are loose.			
Overall Object Management System is poorly organized. Multiple objects are not managed.		4	1.50
Overall Object Management System is reasonably organized. A minimum of 2 objects are not managed.			
Overall Object Management System is very well organized. No objects are not managed.			
Overall Object Management System is exceptionally well organized. No objects are not managed.			

Criterion D Total Mark 5.00

Extra Aspect Description (Meas or Judg) OR Judgement Score Description (Judg only)	Requirement or Nominal Size (Measurement Only)	WSSS Section	Max Mark
The Safety Light functionality is observed through a series	0 or 1	5	1.00
The external face of the Reception Area Exit Arch defines	0 or 1	5	1.50
The external face of the Reception Area Exit Arch defines	0 or 1	5	2.00
The Robot's starting position is in the Reception Area Pas	0 or 1	5	1.50
The Robot's starting position is in the Reception Area Pas	0 or 1	5	2.00
The Robot's starting position is in the Reception Area Pas	0 or 1	5	2.00
The Robot's starting position is in the Reception Area Pas	0 or 1	5	2.00
The Robot's starting position is in the Reception Area Pas	0 or 1	5	2.00
The Robot's starting position is in the Reception Area Pas	0 or 1	5	2.00
The Robot starts outside the Reception Area Archway, mo	0 or 1	5	2.00
The Robot starts outside the Reception Area Archway, mo	0 or 1	5	2.00
Extra Aspect Description (Meas or Judg) OR Judgement Score Description (Judg only)	Requirement or Nominal Size (Measurement Only)	WSSS Section	Max Mark
	0 to 5	6	1.50
	0 to 5	6	1.50
	0 to 5	6	2.00

Criterion E Total Mark 20.00

Criterion F Total Mark 30.00

0 to 5	6	1.50
0 to 5	6	1.50
0 to 5	6	2.00
0 to 5	6	1.50
0 to 5	6	1.50
0 to 5	6	2.00
0 to 5	6	1.50
0 to 5	6	1.50
0 to 5	6	2.00
0 to 5	6	1.50
0 to 5	6	1.50
0 to 5	6	2.00
0 to 5	6	1.50
0 to 5	6	1.50
0 to 5	6	2.00
Requirement or Nominal Size (Measurement Only)	WSSS Section	Max Mark
Requirement or Nominal Size (Measurement Only)	WSSS Section	Max Mark

Criterion G Total Mark 0.00

Criterion H Total Mark 0.00

Extra Aspect Description (Meas or Judg) OR Judgement Score Description (Judg only)	Requirement or Nominal Size (Measurement Only)	WSSS Section	Max Mark

Criterion I Total Mark 0.00

Competition Total Mark 100.00