

Iowa Dream and Design Challenge: Pella High School Students Grades 9-12

Cost Analysis of Advanced Manufacturing Lab for the Career Academy of Pella

	Phase 1 -Consists of initial equipment necessary to establish the Advanced Manufacturing lab, including necessary safety needs and storage.		
Count		Unit Cost	Total Investment
	Robotics Technology		
	Robotic Technology will allow students to design and program AI in the form of programmable logic controls to overcome obstacles and perform tasks.		
10	Dobot Magician - Educational Version	\$1,900.00	\$19,000.00
10	Dobot Magician Accessory Kits	\$300.00	\$3,000.00
3	DOBOT Conveyor Belt Kit	\$600.00	\$1,800.00
3	Dobot Sliding Rail Kit for Dobot Magician	\$1,300.00	\$3,900.00
2	DOBOT Visual Kit	\$450.00	\$900.00
1	DOBOT Basic AI Kit	\$1,900.00	\$1,900.00
	3D Printing Technology		
	The 3D Printing Technology allows for students to use rapid prototyping and the use of design software to quickly form a physical prototype.		
1	Ender - 7 3D Printer	\$700.00	\$700.00
1	Creality 3DPrintMill(CR-30)	\$1,100.00	\$1,100.00
2	Filament Dryers	\$100.00	\$200.00
	CNC Milling Technology		
	With the CNC Milling Technology, we will be able to fabricate more solid and durable products than the 3d printing technology, when a more permanent product is needed.		
1	Tormach PCNC 440 Premium CNC Mill	\$6,000.00	\$6,000.00
1	PCNC Base Cabinet/Stand	\$1,000.00	\$1,000.00
1	PCNC Chip PAN	\$700.00	\$700.00
1	PCNC Enclosure Kit	\$1,700.00	\$1,700.00
1	Control Systems	\$1,300.00	\$1,300.00
1	Coolant System	\$500.00	\$500.00
1	PCNC Work Holding Set	\$400.00	\$400.00
1	PCNC Tool Holding Set	\$1,100.00	\$1,100.00
1	Tooling Set	\$600.00	\$600.00
1	PCNC 440 Power Drawbar Set	\$1,000.00	\$1,000.00
1	PCNC 440 Automatic Tool Changer	\$3,300.00	\$3,300.00
1	ATC Pressure Sensor	\$170.00	\$170.00
1	Measurement Passive Probe Kit	\$400.00	\$400.00
1	Digital Touch Tool	\$80.00	\$80.00

1	PCNC Software	\$1,400.00	\$1,400.00
1	Extended Warranty	\$700.00	\$700.00
	Storage and Shelving		
6	Base Cabinets (36"w x 35"h x 22"d) with 2.25" Maple tops	\$600.00	\$3,600.00
	Accommodating Safety Needs		
1	Additional Exit Door (Labor and Materials)	\$2,800.00	\$2,800.00
	Electrical Wiring/Possible Breaker	\$6,200.00	\$6,200.00
	Curriculum		
1	Teacher PD (curriculum development and equipment)	\$4,000.00	\$4,000.00
	Overall Investment of Phase 1		\$69,450.00
	Phase 2- After the completion of phase one additional equipment will be added to further learning.		
Count		Unit Cost	Total Investment
	Automation Technology		
	The automation technology allows for students to get hands-on experience with the automation of advanced manufacturing and see what fourth generation manufacturing entails.		
3	Tabletop Mechatronics Learning System	\$2,250.00	\$6,750.00
1	Inventory Station - Tabletop Mechatronics	\$5,920.00	\$5,920.00
1	Inspection Station - Tabletop Mechatronics	\$5,640.00	\$5,640.00
1	Distribution Station - Tabletop Mechatronics	\$6,350.00	\$6,350.00
1	Mobile Technology Workstation,	\$1,495.00	\$1,495.00
1	Amatrol Tabletop Mechatronics		
	Curriculum		
1	Teacher PD (curriculum development and equipment)	\$4,000.00	\$4,000.00
	Overall Investment of Phase 2		\$30,155.00
	Overall Total Investment		\$99,605.00