



Virginia Department of Planning and Budget  
**Project Request Justification**

2006-2008 Biennium Date: July 22, 2005

**A. General Information**

1. Agency name: Virginia Tech 2. Agency code: 208  
 Equip:  
 3. Project title: Institute for Critical Technology & Applied Science 4. Agency priority: 23  
 5. Contact Person: M. Dwight Shelton, Jr.  
 6. Contact's telephone number: (540) 231-8775  
 7. Contact's e-mail address: mdsjr@vt.edu

**B. Proposed Project**

1. Project Cost:

General Fund/General Fund supported debt	3,004,000
Nongeneral fund	
9 (c) revenue debt	
NGF supported 9 (d) revenue bonds	
<b>Total request</b>	<b>3,004,000</b>

2. Project cost changes:

NONE.

3. Description:

- This request is for restoration of equipment funds for a 2002 General Obligation Bond project, a debt-financed project in the state's Capital Improvement Plan (CIP).
- The request covers funding for equipment and loose furnishings not included in the original project funding.
- This equipment funding is to outfit the facility with scientific research equipment and furnishings to support the research activities and provide environmental safety and protection for the staff.
- The equipment is needed in fiscal year 2006-2007 to coordinate with the occupancy of the building and to ensure adequate procurement lead time for scientific equipment and compliance with purchasing policies.

**4. Project scope change:**

NONE.

**5. a. Approved Master Site Plan:** Yes  No   
**If not, explain:**

**b. 2004-10 Capital Outlay Plan:** Yes  No   
**If not, explain:**

**6. Equipment for a previously funded project.**

ROOM	DESCRIPTION	QTY	LIST PRICE	TOTAL
<b>Furniture</b>				
<b>First Floor- Area 'A'</b>				
Office A	Casegoods: Work wall	1	\$ 7,508	\$ 7,508
	Casegoods: Standard set up	1		
Office B1 (alternate)	Task Chairs	1	\$ 583	\$ 583
	Guest Chairs	2	\$ 452	\$ 904
	Individual trash cans	1	\$ 15	\$ 15
	White Board 48"x48"	1	\$ 670	\$ 670
Office B2	Casegoods: Standard set up	3	\$ 5,440	\$ 16,320
	Task Chairs	3	\$ 583	\$ 1,749
	Guest Chairs	3	\$ 452	\$ 1,356
	Individual trash cans	3	\$ 15	\$ 45
	White Board 48"x48"	1	\$ 670	\$ 670
Group Office G	Workstations	4	\$ 28	\$ 112
	Files: 36"w, 2-drawer	5	\$ 450	\$ 2,250
	Task Chairs	4	\$ 583	\$ 2,332
	Individual trash cans	4	\$ 15	\$ 60
	Printer/Fax Station	1	\$ 400	\$ 400
Team Room	Table:42"x42"	2	\$ 713	\$ 1,426
	Chairs	8	\$ 238	\$ 1,904
	Individual trash cans	1	\$ 15	\$ 15
	Recycle Bin	3		
	Vending machine	1		
Labs	Lab stools	17	\$ 238	\$ 4,046
	Lab chairs	35	\$ 238	\$ 8,330
	Individual trash cans	30	\$ 15	\$ 450
	<b>Total Area 'A'</b>		<b>\$</b>	<b>51,145</b>

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**First Floor- Area 'B'**

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Reception Desk	Reception Desk Chair	1	\$	583	\$	583
	Individual trash cans	1	\$	15	\$	15
Lobby	Lounge Seating					
	60"w sofa	2	\$	3,240	\$	6,480
	72"w sofa	1	\$	3,600	\$	3,600
	Lounge chair	2	\$	2,100	\$	4,200
	End table	4	\$	490	\$	1,960
<b>Total Area 'B'</b>					<b>\$</b>	<b>16,838</b>

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**Second Floor-Area 'A'**

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Office A	Casegoods: Work wall	6	\$	7,508	\$	45,048
<i>Office B1 (alternate)</i>	<i>Casegoods: Standard set up</i>	6				
	Task Chairs	6	\$	583	\$	3,498
	Guest Chairs	12	\$	452	\$	5,424
	White Board 48"x48"	6	\$	670	\$	4,020
	Individual trash cans	1	\$	15	\$	15
Group Office C	Workstations	5	\$	2,730	\$	13,650
	Task Chairs	5	\$	583	\$	2,915
	Files: 36"w, 2-drawer	5	\$	450	\$	2,250
	Printer/Fax Station	1	\$	450	\$	450
	Individual trash cans	5	\$	15	\$	75
Group Office H	Workstations	6	\$	2,730	\$	16,380
	Task Chairs	6	\$	583	\$	3,498
	Files: 36"w, 2-drawer	4	\$	450	\$	1,800
	Printer/Fax Station	1	\$	400	\$	400
	Individual trash cans	4	\$	15	\$	60
Group Office D	Workstations	6	\$	2,730	\$	16,380
	Task Chairs	6	\$	583	\$	3,498
	Files: 36"w, 2-drawer	12	\$	450	\$	5,400
	Printer/Fax Station	1	\$	400	\$	400
	Individual trash cans	6	\$	15	\$	90
Group Office E	Workstations	8	\$	2,730	\$	21,840
	Task Chairs	8	\$	583	\$	4,664
	Files: 36"w, 2-drawer	8	\$	450	\$	3,600
	Printer/Fax Station	1	\$	400	\$	400
	Individual trash cans	8	\$	15	\$	120

Meeting Room M1	Conference Chairs	12	\$	297	\$	3,564
	Modular tables	4	\$	891	\$	3,564
	Individual trash cans	1	\$	15	\$	15
Meeting Room M2	Conference Chairs	10	\$	297	\$	2,970
	Conference Table	1	\$	3,564	\$	3,564
	Individual trash cans	1	\$	15	\$	15
Corridor B90	Lounge Seating					
	Lounge chair	6	\$	1,070	\$	6,420
	Corner tables	2	\$	594	\$	1,188
	Bench	1	\$	891	\$	891
	Individual trash cans	2	\$	15	\$	30
Labs(4)	Lab chairs	21	\$	238	\$	4,998
	Lab stools	51	\$	238	\$	12,138
	White Board 72"x48"	4	\$	951	\$	3,804
	Individual trash cans	40	\$	15	\$	600
<b>Total Area 'A'</b>				<b>\$</b>	<b>\$</b>	<b>199,636</b>

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#### Second Floor-Area 'B'

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Computer Lab	Conference Table	1	\$	14,850	\$	14,850
	Conference Chairs	14	\$	713	\$	9,982
	Lounge chair	8	\$	1,664	\$	13,312
	End table	2	\$	490	\$	980
	Credenza unit	1	\$	713	\$	713
	Individual trash cans	1	\$	15	\$	15
<b>Total Area 'B'</b>				<b>\$</b>	<b>\$</b>	<b>39,852</b>

#### Labs

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#### First Floor - Lab Areas

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Lab 127	See Note #3.	570	\$	130	\$	74,100
	Paper Towel Dispenser	1	\$	50	\$	50
	Soap Dispenser	1	\$	20	\$	20
	First Aid Kit	1	\$	30	\$	30
	Fixed Casework, Base and Wall	37	\$	919	\$	34,003
Lab 129	See Note #3.	427	\$	130	\$	55,510
	Paper Towel Dispenser	1	\$	50	\$	50
	Soap Dispenser	1	\$	20	\$	20
	First Aid Kit	1	\$	30	\$	30
	Fixed Casework, Base and Wall	25	\$	919	\$	22,975

Lab 135	See Note #3.	440	\$	130	\$	57,200
	Paper Towel Dispenser	1	\$	50	\$	50
	Soap Dispenser	1	\$	20	\$	20
	First Aid Kit	1	\$	30	\$	30
	Fixed Casework, Base and Wall	30	\$	919	\$	27,570
AMCF	See Note #1.	1		\$		-
	Paper Towel Dispenser	6	\$	50	\$	300
	Soap Dispenser	6	\$	20	\$	120
	First Aid Kit	14	\$	30	\$	420
AMCF/ Main. Shop	Paper Towel Dispenser	1	\$	50	\$	50
	Soap Dispenser	1	\$	20	\$	20
	First Aid Kit	1	\$	30	\$	30
Chemical Storage	Metal Storage Shelves (7' h x 4' w)	10	\$	200	\$	2,000
<b>Total First Floor Lab Areas</b>				<b>\$</b>		<b>274,598</b>

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#### Second Floor - Lab Areas

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Lab 220	Water Polisher	1	\$	2,900	\$	2,900
	Paper Towel Dispenser	3	\$	50	\$	150
	Soap Dispenser	3	\$	20	\$	60
	First Aid Kit	1	\$	30	\$	30
	Gas Chromatograph w/ FID & ECD	2	\$	22,500	\$	45,000
	Chromatography Workstation w/PC	1	\$	7,300	\$	7,300
	Hydrogen Generator for GCs	1	\$	6,500	\$	6,500
	Zero Air Generator for GCs	1	\$	6,000	\$	6,000
	HPLC w/ UV & RI Detectors	1	\$	29,000	\$	29,000
	Ion Chromatograph	1	\$	45,000	\$	45,000
	Inductively Coupled Plasma Spectrometer	1	\$	85,000	\$	85,000
	Atomic Absorption w/ Graphite Furnace	1	\$	48,000	\$	48,000
	UV-Vis Scanning Spectrometer	1	\$	20,000	\$	20,000
	UV-Vis Spectrophotometer	3	\$	11,000	\$	33,000
	Infra-red Spectrometer (FT-IR)	1	\$	38,000	\$	38,000
	Total Organic Carbon Analyzer	1	\$	38,000	\$	38,000
	Digital Viscometer	1	\$	7,000	\$	7,000
	High Temperature Liquid Bath	1	\$	1,200	\$	1,200
	Refrigerated circulating bath	1	\$	2,500	\$	2,500
	Petrochemical Testing apparatus-ASTM	4	\$	16,000	\$	64,000
	Coulometric Karl Fischer	1	\$	7,000	\$	7,000
	Muffle Furnace	1	\$	1,300	\$	1,300
	pH meter	4	\$	700	\$	2,800
	Ion Selective Meter w/ ISE	1	\$	1,700	\$	1,700

	Drying Oven	2	\$	1,800	\$	3,600
	Conductivity Meter	1	\$	1,000	\$	1,000
	Analytical Balance, 0.1mg, 200g cap	2	\$	2,200	\$	4,400
	Top Loading Balance, 0.01g, 600g cap	2	\$	1,100	\$	2,200
	Top Loading Balance, 0.1g, 2,000g cap	2	\$	1,000	\$	2,000
	Water Bath	2	\$	1,000	\$	2,000
	Vacuum Oven	1	\$	3,200	\$	3,200
	General Laboratory Equipment	1	\$	25,000	\$	25,000
	General Laboratory Safety Equipment	1	\$	5,000	\$	5,000
	General Laboratory Glassware	1	\$	12,000	\$	12,000
	General Laboratory Consummables	1	\$	6,000	\$	6,000
	General Laboratory Chemicals & Solvents	1	\$	17,000	\$	17,000
Lab 230	See Note #2.	1	\$	365,417	\$	365,417
	Water Polisher	1	\$	2,900	\$	2,900
	Paper Towel Dispenser	3	\$	50	\$	150
	Soap Dispenser	3	\$	20	\$	60
	First Aid Kit	1	\$	30	\$	30
	Fixed Casework (See note #4)	1	\$	23,120	\$	23,120
	Mobile Benches (See note #5)	1	\$	82,800	\$	82,800
Lab 240	See Note #2.	1	\$	365,417	\$	365,417
	Water Polisher	1	\$	2,900	\$	2,900
	Paper Towel Dispenser	3	\$	50	\$	150
	Soap Dispenser	3	\$	20	\$	60
	First Aid Kit	1	\$	30	\$	30
	Fixed Casework (See note #4)	1	\$	23,120	\$	23,120
	Mobile Benches (See note #5)	1	\$	82,800	\$	82,800
Lab 250	See Note #2.	1	\$	365,417	\$	365,417
	Water Polisher	1	\$	2,900	\$	2,900
	Paper Towel Dispenser	3	\$	50	\$	150
	Soap Dispenser	3	\$	20	\$	60
	First Aid Kit	1	\$	30	\$	30
	Fixed Casework (See note #4)	1	\$	23,120	\$	23,120
	Mobile Benches (See note #5)	1	\$	77,280	\$	77,280
	<b>Total Second Floor Lab Areas</b>				<b>\$</b>	<b>1,992,751</b>
<b>PRODUCT SUBTOTAL</b>						<b>\$ 2,574,820</b>
<b>ESCALATION FOR LATE 2007 DELIVERY -</b>						<b>6%</b>
						<b>\$ 154,489</b>
<b>DELIVERY &amp; INSTALLATION</b>						<b>15%</b>
						<b>\$ 409,396</b>
<b>CONTINGENCY</b>						<b>10%</b>
						<b>\$ 27,293</b>
<b>ESTIMATED TOTAL</b>						<b>\$ 3,165,998</b>

7. Supplement to a previously funded project.

NONE.

**C. Project Justification**

1. a. Existing condition:

This first building (Phase I) for Virginia Tech’s Institute for Critical Technology and Applied Sciences (ICTAS) was authorized in the 2002 General Obligation Bond (GOB) Program and construction is planned for early 2006. The facility will support the research programs and activities of over 1,282 staff engaged in science and technology research. This equipment funding is to outfit the facility with scientific research equipment and furnishings to facilitate the research programs.

Higher Education Only

b. Facility Condition Index:

FCI \_\_\_\_\_

c. Space deficit:

Yes  No

2. Programmatic information:

- This first building (Phase I) for Virginia Tech’s Institute for Critical Technology and Applied Sciences (ICTAS) was authorized in the 2002 General Obligation Bond (GOB) Program with \$13,996,000 in GOB funding and \$17,000,000 in nongeneral fund support from the authorization of 9(d) agency bonds, for a total project cost of \$30,996,000. The project called for the construction of a 103,000 gross square foot (GSF), highly specialized research laboratory building for engineering and science programs.
- The building includes approximately 47,000 net square feet of research laboratory space, 4,800 net square feet of meeting space, and approximately 11,620 net square feet of offices and administrative support space. The university does not currently have the proposed necessary equipment to support the mission and operation of this research facility- all proposed equipment and furnishings in this project request are new.
- The completion of the ICTAS Phase I building is vital to the success of Virginia Tech’s Institute for Critical Technology and Applied Sciences initiative and the achievement of the university’s goal to increase research productivity in growth-oriented areas of science and technology. The establishment of a research facility of this caliber will dramatically impact the teaching and research experience in advanced engineering and sciences at Virginia Tech by allowing students and researchers to utilize the latest materials and techniques in their fields. The enhanced reputation this will bring to the university’s engineering and science programs will increase Virginia Tech’s status as a major research university, attract the brightest students and most successful faculty, and promote scientific and technological development in Southwest Virginia. Further, this building is envisioned to significantly

enhance and increase research space that is needed to support local business and industry and to provide for economic development throughout the Commonwealth.

### **3. Alignment to July 15 strategic plan:**

This project will supplement the Institute for Critical Technology and Applied Science, Phase I with funding for equipment. This project will support Virginia Tech's strategic plan in the areas of Research and Scholarship, Graduate Education, and Undergraduate Education. When completed, Phase I of the Institute for Critical Technology and Applied Science will provide modern facilities to support a multitude of activities in each of these areas and further the following university goals:

Research and Scholarship:

1. Increase the stature of Virginia Tech as a national research university in quality of research and scholarship.
2. Increase the stature of Virginia Tech as a national research university in quantity of research and scholarship.

Graduate Education:

1. Increase the quality of the graduate programs.

Undergraduate Education:

1. Maintain a current, relevant, and comprehensive undergraduate curriculum.
2. Strengthen the quality of undergraduate instruction.
3. Create learning experiences for undergraduate students that maximize the benefits of attending a large research university.
4. Expand the university's leadership role in the effective integration of instructional technology and pedagogy.

### **D. Options Considered**

Delay to a future biennium in outfitting and furnishing the Institute for Critical Technology and Applied Science, Phase I building would result in a facility that would reach only a fraction of its potential as envisioned by the university and authorized by the state.

### **E. Project Schedule Changes:**

NONE.