

STEPHEN T. MUENCH

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EDUCATION

Ph.D. Emphasis – Construction and Pavements <i>University of Washington</i>	2001 - 2004 <i>Seattle, Washington</i>
MSCE, Emphasis – Construction, Transportation, and Pavements <i>University of Washington</i>	1997 - 1998 <i>Seattle, Washington</i>
BSCE, Civil Engineering <i>University of Washington</i>	1986 - 1990 <i>Seattle, Washington</i>

PROFESSIONAL HISTORY

Assistant Professor – Civil and Environmental Engineering <i>University of Washington</i>	2004 – present <i>Seattle, Washington</i>
Course Instructor <i>University of Washington</i>	2003 – 2004 <i>Seattle, Washington</i>
Taught several courses as the sole instructor or co-instructor as a graduate student.	
<ul style="list-style-type: none">• <i>CEE 320 Transportation Engineering I</i>. Junior-level introductory transportation course. Sole instructor. 68 students.• <i>CEE 599 Pavement Construction</i>. Online graduate class on pavement construction. Taught twice, 12 total students. Co-instructor. Received national R1edu award for efforts.• <i>CEE 599 Transportation Seminar</i>. Graduate-level seminar on transportation topics. Co-instructor with another graduate student. 15 students.	
Research Assistant/Associate <i>University of Washington</i>	2001 - 2004 <i>Seattle, Washington</i>
Teaching Assistant <i>University of Washington</i>	2001 <i>Seattle, Washington</i>
Design Engineer II <i>Perteet, Inc.</i>	Jan 1999 – Dec 2000 <i>Everett, Washington</i>
A multi-disciplined engineering consulting firm specializing in transportation-related projects.	
<ul style="list-style-type: none">• Responsible for managing and designing all aspects of transportation-related design projects including plans preparation, reports, specifications, cost estimates, schedules, quality control, and client interaction.• Developed, implemented and managed a company-wide training program including general, technical and business knowledge.• Trained company personnel in the fields of roadside safety, geometric design and pavements.• Lead design engineer on several projects including an \$8 million county road project. Designed geometric alignment and drainage, investigated environmental impacts and right-of-way acquisition, wrote design summary and participated in public meetings.	

Project management, leadership, and teaching positions in Florida, Idaho, Connecticut and Hawaii

- **1996 – 1997: Tactics Training Department Director**
Naval Submarine Training Center Pacific, Pearl Harbor, HI
 - Managed the entire Pacific submarine fleet training program (24 submarines and over 3,000 personnel) including planning, coordinating, purchasing, performance evaluations, and auditing.
 - Developed and implemented a submarine training course for Korean submarine officers.
 - Revised and taught submarine training courses for Japanese and Australian submarine officers.

- **1995 – 1996: Senior Instructor**
Naval Submarine Training Center Pacific, Pearl Harbor, HI
 - Developed and taught technical and professional courses to Pacific fleet submarine personnel.
 - Devised and taught 12 new management and technical training courses.
 - Taught courses in six different areas of expertise to more than 1,000 persons in two years with consistently outstanding evaluations.

- **1994 – 1995: Quality Assurance Officer**
USS WILLIAM H. BATES (SSN 680), Pearl Harbor, HI
 - Managed nuclear submarine quality control program.
 - Coordinated and administered training of 150 quality control inspectors and workers.
 - Developed new, more efficient maintenance and replacement procedures that reduced customer complaints by 40%.

- **1992 – 1995: Division Officer / Watch Officer**
USS WILLIAM H. BATES (SSN 680), Pearl Harbor, HI
 - Managed six personnel divisions including planning, coordinating, purchasing, performance evaluation, and auditing.
 - Conducted in-depth technical training seminars.
 - Qualified by the Department of Naval Reactors as Engineering Department Head for a naval nuclear propulsion plant. This position carries the sole responsibility for the operation and maintenance of a multi-million dollar nuclear reactor and all related equipment.
 - Managed over 100 people in a multi-million dollar, month-long nuclear reactor plant project. Conceived and implemented all facets of the training program, procedures, and schedule. Also coordinated multiple maintenance facilities, and oversaw complex radiological controls. Completed ahead of schedule and under budget.

- **1991 – 1992: Student**
Nuclear Propulsion Training Unit, Idaho National Engineering Laboratory, Idaho Falls, ID

Hands-on training and operation of a nuclear power plant. Includes theoretical, practical and design aspects of nuclear physics, radiation control, chemistry, electronics, materials and integrated operation.

- **1990 - 1991: Student**
Naval Nuclear Power School, Orlando, FL

Advanced course work in nuclear physics, mathematics, chemistry, thermodynamics, electrical engineering, materials, and steam and nuclear plant operations.

- **1990: Combined Federal Campaign Loaned Executive**
United Way, Seattle WA
 - Managed all Navy Combined Federal Campaign charity accounts in the Seattle-Tacoma metropolitan area covering more than 3,000 people.
 - Instructed account representatives on campaign specifics and procedures.

REFEREED JOURNAL ARTICLES

Kristjansdottir, O.; Muench, S.T.; Michael, L. and Burke, G. (accepted for publication 2007). Assessing the Potential for Warm Mix Asphalt Technology Adoption. Accepted for presentation at the Transportation Research Board's 2007 Annual Meeting and accepted for publication in the *Transportation Research Record*.

Muench, S.T.; Mahoney, J.P.; Wataru, W.; Chong, L. and Romanowski, J. (submitted for publication 2006). Best Practices for Long-Lasting Low-Volume Pavements. Submitted for publication in the ASCE *Journal of Infrastructure Systems*.

Li, J.; Muench, S.T.; Mahoney, J.P.; Sivaneswaran, N.; Pierce, L.M. and White, G.C. (accepted for publication 2006). *Calibration of the Rigid Pavement Portion of the NCHRP 1-37A Software for Use by the Washington State Department of Transportation*. Presented at the Transportation Research Board's 2006 Annual Meeting and accepted for publication in the *Transportation Research Record*.

Muench, S.T. (2006). A Self Managed Learning Model for Civil Engineering Training. *Journal of Professional Issues in Engineering Education and Practice*, Vol. 132, No. 3, pp. 209-216.

Li, J.; Muench, S.T.; Mahoney, J.P.; Pierce, L.M.; Sivaneswaran, N and White, G.C. (2005). The Highway Development and Management System in Washington State: Calibration and Application for the Department of Transportation Road Network. *Transportation Research Record 1933*. Transportation Research Board, National Academies, Washington, D.C., pp. 53-61.

Muench, S.T. and Mahoney, J.P. (2004). A Computer-Based Multimedia Pavement Training Tool for Self-Directed Learning. In *Transportation Research Record 1896*. TRB, National Research Council, Washington, D.C., pp. 3-12. Winner of the 2004 K.B. Woods Award best paper in the area of design and construction of transportation facilities.

Muench, S.T.; White, G.C.; Mahoney, J.P.; Turkiyyah, G.M.; Sivaneswaran, N.; Pierce, L.M. and Li, J. (2004). Washington State's Web-Enabled Pavement Management System. In *Transportation Research Record 1889*. TRB, National Research Council, Washington, D.C., pp. 35-46.

Mahoney, J.P.; Muench, S.T.; Pierce, L.M.; Read, S.A.; Jakob, H.; Moore, R. (2000). Construction-Related Temperature Differentials in Asphalt Concrete Pavement: Identification and Assessment. In *Transportation Research Record 1712*. TRB, National Research Council, Washington, D.C., pp. 93-100.

REFEREED CONFERENCE PROCEEDINGS

Muench, S.T.; Mahoney, J.P.; Pierce, L.M.; Uhlmeyer, J. and Anderson, K. (submitted for presentation 2006). The Evolution of Long-Life Concrete Pavements in Washington State. *Proceedings of the International Conference on Long-Life Concrete Pavements*, 24-27 October 2006, Chicago, IL.

Muench, S.T.; White, G.C.; Mahoney, J.P.; Sivaneswaran, N.; Pierce, L.M. (2004). *Maintenance and Rehabilitation of Low-Volume Pavements in Washington State*. Transportation Research Board 2005 annual meeting, Washington, D.C.

Muench, S.T.; Mahoney, J.P.; White, G.; Pierce, L.M. and Sivaneswaran, N. (2004). Long-Lasting Low-Volume Pavements in Washington State. *Proceedings of the International Symposium on the Design and Construction of Long Lasting Asphalt Pavements*. June 7-9, 2004, Auburn, AL.

White, G.C.; Muench, S.T.; Mahoney, J.P.; Turkiyyah, G.M.; Sivaneswaran, N. and Pierce, L.M. (2004). PMSView: A Web-Enabled Pavement Management System. *Proceedings: 6th International Conference on Managing Pavements*. October 19-24, 2004, Brisbane, Australia.

OTHER PUBLICATIONS / PAPERS

Multimedia Publications

Muench, S.T.; Mahoney, J.P. and White, G.C. (2006). *Pavement Interactive*. An online collaborative environment for pavements. Pavement Tools Consortium, Seattle, WA (<http://www.pavementinteractive.org>).

Muench, S.T.; Mahoney, J.P. and Pierce, L.M. (2005). *PTC Pavement Guide Interactive*. Pavement Tools Consortium, Seattle, WA. (<http://ptc.ce.washington.edu>).

Muench, S.T. and the National Center for Asphalt Technology. (2005). *The Virtual Superpave Laboratory*. Publication ED-001. National Asphalt Pavement Association, Landham, MD.

Muench, S.T.; Mahoney, J.P. and Pierce, L.M. (2003). *WSDOT Pavement Guide Interactive*. Washington State Department of Transportation, Olympia, WA. Available from WSDOT Engineering Publications (<http://www.wsdot.wa.gov/fasc/EngineeringPublications/order.htm>).

Muench, S.T. (2003). *HAPI Asphalt Pavement Guide*. Hawaii Asphalt Paving Industry, Honolulu, HI. Available from HAPI or at: www.hawaiiasphalt.com/pavement_guide.htm.

Muench, S.T. (2002). *WAPA Asphalt Pavement Guide*. Washington Asphalt Pavement Association, Seattle, WA. Available from WAPA or at: www.asphaltwa.com/pavement_guide.htm.

Muench, S.T. and Mahoney, J.P. (2002). *NAPA Guide for Hot Mix Asphalt Pavement*. Publication TAS-030. National Asphalt Pavement Association, Landham, MD.

Invited Conference Proceedings/Talks

Muench, S.T. (2006). *Online Training for the Hot Mix Asphalt Industry*. 18th Annual WAPA/WSDOT Joint Technical Conference, March 7 and 9 sessions in Seattle and Tacoma, WA.

Muench, S.T. (2006). Long-Lasting Low-Volume Pavements in Washington State. *Greater Iowa Asphalt Pavement Conference*. Des Moines, IA, 1-2 March 2006.

Muench, S.T. (2005). Long-Lasting Low-Volume Pavements in Washington State. *59th Annual Ohio Transportation Engineering Conference*, Columbus, OH, 27-28 October 2005.

Muench, S.T. (2005). Long-Lasting Low-Volume Pavements in Washington State. *Asphalt Pavement Innovations Conference*, Peoria, IL, 12-13 April 2005.

Muench, S.T. and Mahoney, J.P. (2005). Virtual Superpave Laboratory. *WASHTO Construction and Materials Meeting*, Seattle, WA, 22-24 March 2005.

Muench, S.T. (2005). Perpetual Pavements for the Rest of Us: Long-Lasting Low-Volume Pavements. *Oregon Asphalt Conference*, Eugene, OR, 3 March 2005.

Muench, S.T. (2005). Pavement Tools. *Oregon Asphalt Conference*, Eugene, OR, 3 March 2005.

Muench, S.T.; Mahoney, J.P. and White, G.C. (2005). New Computer Tools for Hot Mix Asphalt. *2005 National Asphalt Pavement Association Annual Meeting*, Kona, HI, 12-15 February 2005.

White, G.C.; Muench, S.T.; Mahoney, J.P.; Turkiyyah, G.M.; Sivaneswaran N.; Pierce, L.M.; Ahmed K.M. (2004). PMSView: A Web-Enabled GIS Application for Managing Pavements. *ITI Fifth Arab GIS Conference: The Role of the Geoinformation Services in The E-Government*, Cairo, 6-7 September 2004.

Muench, S.T. and Mahoney, J.P. (2004). Computer-Based Training for an Expanding Workforce. *8th Conference on Asphalt Pavements for Southern Africa*, Sun City, North West Province, South Africa, September 12-16, 2004.

Dissertation/Thesis

Muench, S.T. (2004). *A Computer-Based Multimedia Pavement Training Concept for use in a Self-Managed Learning Program for Engineers*. Doctoral Dissertation. University of Washington, Seattle, WA.

Muench, S.T. (1998). *Asphalt Concrete Temperature Differential Damage in Washington State*. Master's Thesis. University of Washington, Seattle, WA.

Project Reports

Li, J.; Muench, S.T. and Mahoney, J.P. (2004). *PCC Models for Rehabilitation/Reconstruction Decision-Making*. WA-RD 588.2. Washington State Department of Transportation (WSDOT), Olympia, WA.

Li, J.; Muench, S.T.; Mahoney, J.P.; White, G.C.; Pierce, L.M. and Sivaneswaran, N. (2004). *Application of HDM-4 in the WSDOT Highway System*. WA-RD 588.1. WSDOT, Olympia, WA.

Muench, S.T. and Mahoney, J.P. (2001). *A Quantification and Evaluation of WSDOT's Hot-Mix Asphalt Concrete Statistical Acceptance Specification*. Washington State Department of Transportation research report. Research Project Agreement T9903.2, Task A5: Asphalt Concrete Specifications. WSDOT, Olympia, WA.

Willoughby, K.A.; Mahoney, J.P.; Pierce, L.M.; Uhlmeier, J.S.; Anderson, K.W.; Read, S.A.; Muench, S.T.; Thompson, T.R. and Moore, R. (2001). *Construction-Related Asphalt Concrete Pavement Temperature Differentials and the Corresponding Density Differentials*. WA-RD 476.1. WSDOT, Olympia, WA.

Other Articles

Muench, S.T. and Willoughby, K. (2006). Research Pays Off: Preventing Pavement Failure Caused by Hot-Mix Asphalt Temperature Differentials: Washington State's Systematic Approach. *TR News*, No. 246, pp. 26-28.

Muench, S.T. (January 2005). Perpetual Pavements for the Rest of Us: Long-Lasting Low-Volume Pavements. *HMAT*, Vol. 10, No. 1, pp. 22-24.

Muench, S.T.; White, G.C. and Willoughby, K.A. (2004). New Tools for Hot Mix Asphalt Pavement. *Asphalt Magazine*. Asphalt Institute, Lexington, KY.

Muench, S.T. (August 2003). Rolling a perfect score. *Roads & Bridges*, August 2003.

OTHER QUALIFICATIONS AND RECOGNITION

Transportation Research Board K.B. Woods Award 2004

Lead author for *A Computer-Based Multimedia Pavement Training Tool for Self-Directed Learning*, which won the K.B. Woods Award given for the best paper in the area of design and construction of transportation facilities. The K.B. Woods Award is highly selective and was selected from among 700 papers eligible for consideration in 2004.

National Engineering Education Delivery System (NEEDS) 2003 Premier Award 2003

Principal author and designer of the WSDOT *Pavement Guide Interactive*, one of only two nationwide recipients of the NEEDS 2003 Premier Award. The Premier Award for Excellence in Engineering Education Courseware recognizes high-quality, non-commercial courseware designed to enhance engineering education. More information at: <http://www.needs.org>.

2003 R1edu Award

2003

Co-instructor and co-course designer with Professor Joe Mahoney for CEE 599 Pavement Construction. Received one of only three nationwide 2003 R1edu awards for work on this course and its associated text material (the WSDOT *Pavement Guide Interactive* and the WAPA *Asphalt Pavement Guide*). The R1edu awards signify significant contributions to online education during the past year. R1edu is a consortium of 34 American research universities that pool their resources and knowledge to provide access to online classes and reference materials. Participating institutions are members of the Carnegie Foundation and of the prestigious Association of American Universities. More information at: <http://www.r1edu.org>.

Asphalt Technology Professor Training Course Graduate

2002

National Center for Asphalt Technology, Auburn University, AL

Two-week intensive course on asphalt technology. Topics include construction practices, asphalt testing and grading, hot mix asphalt mix design, materials characterization, rehabilitation and maintenance.

Registered Professional Engineer in Washington State

2001 – present

License number 37404

AWARDS AND SCHOLARSHIPS

- Transportation Research Board K.B. Woods Award 2004
- National Engineering Education Delivery System (NEEDS) Premier Award 2003
- R1edu Award 2003
- Valle Scholarship (full scholarship plus stipend for one year) 1997 – 1998
- Coral Sales Scholarship (partial scholarship) 1998
- Four year Naval Reserve Officer Training Corps (ROTC) academic scholarship 1986 – 1990
- Navy Commendation Medal 1997
- Navy Achievement Medal (three awards) 1992, 1993, 1995
- Navy Expeditionary Medal 1992

PROFESSIONAL SOCIETY MEMBERSHIP

- Transportation Research Board (AFH60, flexible pavement construction, committee member)
- International Society for Asphalt Pavements (ISAP)
- Washington Asphalt Pavement Association (WAPA) –part of UW membership
- American Society of Civil Engineers (ASCE) – member number 267308

REVIEWS MADE

Journal, Proceedings and Proposal	Number
Transportation Research Board	10
ASCE Journal of Materials in Civil Engineering	6
ASCE Journal of Infrastructure Systems	2
University Transportation Research Centers	4
International Journal of Pavement Engineering	1
Total	23

FUNDING INFORMATION

Role	Title	Sponsoring Agency	Amount	Period
Co-PI (Brown)	AATPT 05-01: Development of Hot Mix Asphalt Airport Construction Best Practice Manual	Airfield Asphalt Pavement Technology Program (AATPT)	\$47,500 of a \$300,000 contract	2006 – 2008
PI	De-Bonding Cracking in Hot Mix Asphalt Pavement	TransNow	\$50,758	2006 – 2008
PI	Best Practices for the Design and Construction of Portland Cement Concrete Pavements in Washington	WSDOT	\$180,000	2005 – 2007
PI	Rapid Pavement Construction	WSDOT	\$50,000	2005 – 2007
Co-PI (Mahoney)	AASHTO 2002 Design Guide Calibration	WSDOT	\$100,000	2005 – 2007
Co-PI (Turkiyyah)	Evaluation of Dowel Bar Retrofit for Long-Term Life	WSDOT	\$80,000	2005 – 2007
Investigator (Turkiyyah)	Virtual Construction Paving Simulator	TransNow	\$30,000	2005 – 2006
1 of 3 primary investigators	Pavement Tools Consortium	10 state pooled fund study (AL, CA, FL, ID, IL, KS, MD, MN, TX, WA)	\$1,000,000	2004 – 2009
Grants and Funding Applied for but Not Received				
PI	Content Management System (CMS) for Technology Transfer	TransNow	\$15,902	2006 – 2008
PI	University of Washington Undergraduate Student Employment Desires	TransNow	\$3,866	2006
PI	Stone Matrix Asphalt (SMA) in Washington State	TransNow	\$8,943	2006 – 2008
PI	Performance Based Contracting (awarded to Aziz, UW)	WSDOT	\$50,000	2005 – 2007
1 of 3 primary investigators	Interactive, Media-rich, Web-enabled Tools for Transportation Infrastructure Education	Fund for the Improvement of Post Secondary Education (FIPSE)	\$500,000	2004 – 2007
PI	NCHRP Project 10-69, Guidelines for Dowel Alignment in Concrete Pavements (2 nd of 6 applicants)	NCHRP	\$500,000	2005 – 2007
Investigator	NCHRP Project 9-40, Optimization of Tack Coat for HMA Placement (2 nd of an unknown number of applicants)	NCHRP	\$25,000 of a \$350,000 contract	2005 – 2006

TEACHING

Courses

Term	Course Title	Credits	Students	Average Score for Lines 1 - 4				
				1	2	3	4	Combined
Sp 2006	CEE 596 Pavement Construction (online)	3	16	(team taught with Mahoney)				
Sp 2006	CEE 404 Infrastructure Construction	4	38	3.8	3.8	4.1	4.0	3.9
W 2006	CEE 320 Transportation Engineering I	3	39	4.4	3.9	4.6	4.3	4.3
W 2006	CEE 599 Construction Materials (online)	3	16	(team taught with Mahoney)				
Sp 2005	CEE 599 Pavement Construction (online)	3	9	(team taught with Mahoney)				
W 2005	CEE 599 Construction Materials (online)	3	13	(team taught with Mahoney)				
W 2005	CEE 320 Transportation Engineering I	3	62	4.3	4.1	4.7	4.6	4.4
W 2004	CEE 320 Transportation Engineering I	3	70	4.1	3.9	4.4	4.3	4.2
Sp 2004	CEE 599 Pavement Construction (online)	3	9	(team taught with Mahoney)				
Sp 2003	CEE 599 Pavement Construction (online)	3	2	(team taught with Mahoney)				

Independent Study

Term	Course Title	Credits	Student
F 2006	CEE 499 Independent Study Construction Engineering Careers – Case Study	2	Vahid Daneshford
Sp 2006	CEE 499 Independent Study <i>Investigated maturity meter use for WSDOT</i>	2	Euneka Robinson-McCutcheon
Sp 2006	CEE 499 Independent Study <i>Described City of Seattle Internship Possibilities</i>	2	Enrique Garcia
Sp 2006	CEE 499 Independent Study <i>Investigated cost of HMA/PCC for WSDOT</i>	2	Maizer Oujidani
W 2006	CEE 600 Independent Study <i>Investigated use of TransCAD for class design</i>	2	Olof Kristjensdottir
W 2005	CEE 600 Independent Study <i>Investigated use of InRoads and Microstation for geometric design</i>	3	Thorsteinn Hermansson

Short Courses, Workshops and Other Educational Programs

Date	Course Title	Hours	Participants
10/2006	HMA Maintenance and Rehabilitation. 2 seminars for Hawaii Asphalt Paving Industry/LTAP.	16	About 80
3/2006	Pavement Preservation, LCCA and Mix Design 1 seminar for Hawaii Asphalt Paving Industry/LTAP.	8	About 100
3/2006	Engineering Professional Programs PE Review Course	5	About 60
6/2005	National Center for Asphalt Technology (NCAT) Professor Training Course	4	About 20
6/2005	HMA Structural Design 2 seminars for Hawaii Asphalt Paving Industry/LTAP.	16	About 100
4/2005	Engineering Professional Programs PE Review Course	5	About 60
11/2004	HMA Construction 2 seminars for Hawaii Asphalt Paving Industry/LTAP.	16	About 150

Date	Course Title	Hours	Participants
10/2004	Engineering Professional Programs PE Review Course	5	About 60
7/2004	HMA Maintenance and Rehabilitation. 2 seminars for Hawaii Asphalt Paving Industry/LTAP.	16	About 100
4/2004	Engineering Professional Programs PE Review Course	5	About 80
4/2004	HMA Pavement Overview 3 seminars for Hawaii Asphalt Paving Industry/LTAP.	24	About 200
10/2003	Engineering Professional Programs PE Review Course	5	About 80
6/2002	HMA Pavements 1 seminar for Hawaii Asphalt Paving Industry/LTAP	8	About 100

Current Students

Position	Student Name	Degree Sought	Graduation	Support
Chair	Alisa Cotter	MSCE-thesis	2007 (expected)	WSDOT
Chair	Martina Soderlund	MSCE-thesis	2006 (expected)	Valle Scholarship
Chair	Brett Ozolin	MSCE-thesis	2007 (expected)	WSDOT
Co-Chair (Mahoney)	Jianhua Li	PhD	2006 (expected)	WSDOT
Committee Member (Mahoney chair)	Heather Munden	MSCE-thesis	2006	Valle Scholarship
Chair	Olof Kristjansdottir	MSCE-thesis	2006	Valle Scholarship
Committee Member (Wang chair)	Joon Ki Kim	MSCE-thesis	2005	N/A
Committee Member (Mahoney chair)	Mohammed Abu-Tayeh	MSCE-research	2005	N/A

SERVICE

- **2006 Strategic Hiring Committee member (Palmer chair).** Develop long-term strategic plan for hires within the department based on department strategic plan and initiatives.
- **2005 Search Committee member (Rutherford/Palmer chair).** Searching for 2 positions (Transportation, Hydrology).
- **2005 Transportation/Construction Strategic Plan.** Developed and wrote division strategic plan. Volunteer work on own initiative.
- **Computer Committee Member (Arduino chair).**
- **2005 Engineering Open House.** Developed exhibit, donated time.
- **2004 Engineering Open House.** Developed exhibit, won TransNow prize for top CEE exhibit. On Dean's list of recommended exhibits.
- **2003 Search Committee member (Turkiyyah chair).** Student representative. Searched for 3 positions (Transportation, Construction, Water Resources).