SANDEEP LANGAR, Ph.D., LEED AP BD+C, Intl. Assoc. AIA

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Education

Ph.D. Environmental Design and Planning, Virginia Tech. *(2013)*
Dissertation: "The Role of Building Information Modeling (BIM) in the implementation of Rainwater Harvesting Technologies and Strategies (RwHTS)"
Advisor: Dr. Annie Pearce
Committee: Dr. Ki-Hong Ku, Dr. Andrew McCoy, Dr. Ted Koebel, and Dr. Rajesh Bagchi

M.S. Building Construction Science and Management, Virginia Tech, *(Defended: 2008; Awarded: 2012)*
Thesis: "Routinization of Sustainable Innovation in Public Sector: A LEED Analysis."
Advisor: Dr. Annie Pearce
Committee: Dr. Ki-Hong Ku and Prof. Michael O'Brien

Bachelor's of Architecture, University of Mumbai, India *(2003)*
Honors Research: "Revitalization of Cultural Center for Displaced Communities in India."

Primary Research and Teaching Interests

- Adoption and Diffusion of Sustainable Innovations including Water Conserving Technologies & Strategies
- Building Design and Construction Parameters
- Building Information Modeling (BIM) & its Application in Design and Construction Industry
- Sustainability in the Built Environment
- Resilient facilities

Honors and Awards

2015 Awarded NSF Grant to present at the *Engineering Sustainability Conference 2015: Innovation & the Triple Bottom Line*, Pittsburgh, PA, USA
2012 Awarded Outstanding Doctoral Candidate in College of Architecture & Urban Studies (CAUS), by the Graduate School at Virginia Tech, USA
2011 Awarded NSF Travel Grant to present at the *Engineering Sustainability Conference 2011: Innovation & the Triple Bottom Line*, Pittsburgh, PA, USA
2011 Awarded travel grant by the Department of Building Construction to present at the *World Sustainable Building Conference*, Helsinki, Finland
2010 Awarded Citizen Scholar for exemplary work towards development of the community, Virginia Tech, USA
2010 Awarded Best Student Organization of the year while holding the position of President of Indian Students Association (ISA), Virginia Tech, USA
2009 Awarded Myers-Lawson School of Construction Doctoral Fellowship, Virginia Tech, USA
2008 Member of the honorary fraternity, Sigma Lambda Chi, Beta Chapter, Virginia Tech, USA
2007 Awarded Snyder-Roanoke Home Builders Scholarship, Virginia Tech, USA
2004 Shortlisted in the top five teams in the *Banganga Design Competition*, India
2003 Awarded third place for *National Low-Cost Housing Design-Build Competition*, India

Research Activities

Grants and Proposal Development *(2012-Present)*

Total Funded Amount: ***$54, 500***

Funded or Work in Progress

Assistant Professor, The University of Southern Mississippi

A. Funding Agency: Assemble Systems
Project Scope: Utilizing Cloud-based Building Information Modeling Data Management System for Construction Education
Principal Investigator: Dr. Sandeep Langar
Award Amount: *$4,500*
Status: *Completed*

B. Funding Agency: The City of Hattiesburg
Project Scope: Educate CuRIOuS (City Residents on Sustainability) Using Interactive Computational Technology
Principal Investigator: Dr. Sandeep Langar and Dr. Bikramjit Banerjee
Status: *Proposal Development in Progress*

C. Funding Agency: National Science Foundation (NSF)
Project Scope: Enhancing resilience of residential industry against natural disasters
Principal Investigator: Dr. Sandeep Langar
Status: *Proposal Development in Progress*

Building Information Specialist, Manuel Builders *(2012)*

D. Funding Agency: Louisiana Workforce Commission (LWC)
Project Scope: Worker Training Program for Building Information Modeling (BIM)
Principal Investigator: Manuel Builders and Sandeep Langar
Award Amount*: $50,000*
Status: *Awarded and Completed*

Research Assistant, Virginia Tech

Sustainable Facilities & Infrastructure Lab *(2007 – 2011)*

A. National Science Foundation (NSF)
January 2010 – December 2011
Project Scope: Developing Agent-Based Model (ABM) to determine adoption of innovations based on Total Cost of Ownership (TCO)
Principal Investigator: Dr. Annie Pearce
Status: *Completed*

B. Naval Facilities Engineering Command (NAVFAC)
May 2009 – December 2010
Project Scope: Updating & refining DD1391 tool to comply with the requirements of LEED Version 3.0
Principal Investigator: Dr. Annie Pearce
Status: *Completed*

C. Lanford Brothers, Virginia
May 2007 – September 2008
Project Scope: The Extension & Renovation of Lanford Brothers Headquarters in Roanoke VA, USA
Principal Investigator: Dr. Annie Pearce
Status: *Completed*

Submitted and not funded *(2012-Present)*

A. Enhancing Social and Built Environment Resilience against Natural Hazards, *Mississippi-Alabama Sea Grant*, PI: **Langar, S.** (Total: $ 132,875).

B. Creation of Center for Advancement of Research and Education in Sustainability (CARES), *Ray C. Anderson Foundation*, PI: **Langar, S.** (Total: $ 59,595).

C. Sustainable transportation systems that support a healthier society, *National Science Foundation (NSF)*, Co-PI: **Langar, S.** (Total: $ 4,999,007).

D. Educating University Stakeholders on Sustainability using Interactive Computational Technology, The University of Southern Mississippi Foundation, PI: **Langar, S.** (Total: $14,800).

E. Risks and responses to coastal hazards along the southern coast, *Interdisciplinary Research in Hazards and Disasters (Hazards SEES): National Science Foundation (NSF)*, Key Personnel: **Langar, S.** (Total: $ 3,000,000).

Peer Reviewed Publications

Journal

[J.1] **Langar, S.,** and Pearce, A. R. (2016). "Implementation trends for Rainwater Harvesting Technologies and Strategies (RwHTS) and Building Information Modeling (BIM)." *Journal of Architecture Engineering (ASCE)*.

[J.2] **Langar, S.,** Pearce, A. R., and Alanis, L. F. G. (Submitted). "Impact of social geography towards achieving LEED platinum facilities in developing and developed countries." *Entretextos*.

[J.3] Doleac, A. B., and **Langar, S.** (Submitted). "Non-Profit Residential Construction in Mississippi: Analysis of Habitat for Humanity." *Journal of Green Building.*

[J.4] Fountain, J. and **Langar, S**. (Submitted). "Building Information Modeling (BIM) Outsourcing: Identifying Trends and Impacts on the Architecture, Engineering, and Construction (AEC) Industry." Journal of Automation in Construction.

[J.5] **Langar, S.**, Pearce, A. R., Mc Coy, A., Ku, K., Bagchi, R., and Koebel, T. (WIP). "Attributes of innovation affecting the adoption of Rainwater Harvesting Technologies and Strategies (RwHTS)." *Journal of Professional Issues in Engineering Education and Practice (ASCE).*

Conference

[C.1] Mohammed, H.M., **Langar, S.,** Ghosh, S., and Bhattacharjee, S. (2016). "Prevention through Design (PtD): Current State of Knowledge and Implementation in the Design Industry." *Proceedings of 52nd Associated School of Construction International Conference,* Provo, UT, April 13- 16.

[C.2] **Langar, S.**, and Pearce, A.R. (2015). "Rainwater Harvesting Technologies and Strategies (RwHTS) trends in the US and its Implementation by Designers Actively Utilizing Building Information Modeling (BIM)." *Proceedings of Engineering Sustainability: Innovation and the Triple Bottom Line,* Pittsburg, PA, April 19-21.

[C.3] Ghosh, S., **Langar, S.**, and Bhattacharjee, S. (2015). "A Cross-Sectional Study of the Perceptions of Large Contractors towards Prevention through Design." *Proceedings of 51st Associated School of Construction International Conference,* College Station, TX, April 22--25.

[C.4] Bhattacharjee, S., **Langar, S.,** and Hogan, M. (2015). "College Students' Perceptions of Household Energy Efficiency." *Proceedings of Healthy Buildings 2015 America,* University of Colorado, CO, July 19-22, 2015.

[C.5] **Langar, S.**, and Pearce, A.R. (2014). "State of Adoption for Building Information Modeling (BIM) in the south-eastern United States." *Proceedings of 50th Associated School of Construction International Conference,* Washington DC, March 26-29.

[C.6] Carriker, M. and **Langar, S.** (2014). "Factors affecting large scale modular construction projects." *Proceedings of 50th Associated School of Construction International Conference,* Washington DC, March 26-29.

[C.7] Das, C. and **Langar, S.** (2014). "Establishing Benchmarking of Framework for Contractors for building Zero Energy Buildings (ZEB) in U.S. Architecture/Engineering/ Construction (A/E/C) - A Case Study Approach." *Abstract and poster presentation at the 50th Associated School of Construction International Conference,* Washington DC, March 26-29.

[C.8] **Langar, S.**, and Doleac, A.B. (2014). "Non-Profit Residential Construction in Mississippi: Analysis of Habitat for Humanity." *Abstract and poster presentation at the 50th Associated School of Construction International Conference,* Washington DC, March 26-29.

[C.9] **Langar, S.**, Bhattacharjee, S., Gosh, S., Gowda, V., and Finch, J. (2012). "Comparative Analysis of LEED-NCv3.0 with LEED-NCv2.2" *Proceedings of International Conference on Sustainable Design and Construction: Developing the Frontier of Sustainable Design, Engineering, and Construction*, Dallas, TX, November 7-9.

[C.10] Pearce, A.R., Fiori, C.M., **Langar, S.,** Mitra, C., and Short, K.M. (2011). "Student internship program as a benchmarking system for sustainable practice." *Proceedings of the National Environmental Monitoring Conference (NEMC)*, Bellevue, WA.

[C.11] **Langar, S.**, and Pearce, A.R. (2011). "Sustainable Innovations and their Routinization." *Extended abstract and poster presentation at the 6th World Sustainable Building (SB) Conference,* Helsinki, Finland, October 18-21.

[C.12] Gowda, V., James, R.J., and **Langar, S.** (2011). "Performance assessment of alternative composite earth wall panels." *Extended abstract and poster presentation at 6th World Sustainable Building (SB) Conference*, Helsinki, Finland, October 18-21.

[C.13] **Langar, S.**, and Pearce, A.R. (2011). "Routinizing Innovations Towards Sustainability (ITS): A LEED Credit Analysis." *Abstract and poster presentation at Engineering Sustainability 2011 Conference*, Pittsburgh, PA, April 11-12.

[C.14] Pearce, A.R., Fiori, C.M., **Langar, S.**, and Mitra, C. (2011). "Benchmarking Systems for Sustainable Practices." *Abstract and poster presentation at Engineering Sustainability 2011 Conference*, Pittsburgh, PA, April 11-12.

[C.15] Siddiqui, M.Z., Pearce, A.R., Ku, K., **Langar, S.**, Ahn, Y.H., and Jacocks, K. (2009). "Green BIM Approaches to Architectural Design for Increased Sustainability." *Proceedings of International Conference on Construction Engineering and Management/Project Management (ICCEM-ICCPM 2009)*, Jeju, Korea, May 27-30.

Accepted Conferences/Submitted

[C.16] **Langar, S.**, and Bhattacharjee, S. (Accepted). "Identifying Knowledge and Perceptions among Designers about Climate Resilient Buildings." *Building Innovation 2017: The National Institute of Building Sciences Fifth Annual Conference and Expo*, January 9-12, 2017.

[C.17] Bhattacharjee, S., and **Langar, S.** (Accepted). "Assessing Resilience of LEED Certified Facilities in Oklahoma." *Architectural Engineering Institute (AEI): ASCE*, April 11-13, 2017.

[C.18] Criminale, A., and **Langar, S.** (Submitted). "Review of Challenges Associated with BIM Building Information Modeling Implementation." *53rd Associated School of Construction International Conference*, April 5-8, 2017.

Book Chapters

[B.1] **Langar, S.** (In Press). Enabled Design and Construction for a Sustainable Future. *Book Chapter: Sustainable Buildings and Infrastructure: Paths to the Future, 2nd Edition, Routledge, NY, US.*

[B.2] **Langar, S.,** and Bhattacharjee, S. (In Press). Green Buildings and Paradigm Changes within AEC Industry. *Book Chapter: Green Building: Applied Nanotechnology and Renewable Energy, Taylor and Francis Group.*

Monograph

[M.1] **Langar, S.** (2013). The Role of Building Information Modeling (BIM) in the implementation of Rainwater Harvesting Technologies and Strategies (RwHTS). *Doctoral Dissertation, Environmental Design and Planning, Virginia Tech.*

[M.2] **Langar, S.** (2012). Routinization of Sustainable Innovation in Public Sector: A LEED Analysis. *Master's Thesis, Department of Building Construction Science and Management, Virginia Tech.*

Non-peer Reviewed Publications

[1] Fountain, J., **Langar, S.**, and J.B. Knowledge. (2016). "Building Information Modeling (BIM) Outsourcing Report for General Contractors."

[2] **Langar, S.** (2012). "Quarter 1: Standardization of technologies, workflow analysis, and proposed workflow for scattered site projects." Manuel Builders, Lafayette, LA.

[3] Pearce, A.R., Fiori, C.M., Mitra, C., and **Langar, S.** (2011). "Developing Innovative Data Collection Approach through Student Internship Experience." *Abstract and poster presentation at the Conference on Higher Education Pedagogy*, Blacksburg, VA, February 2-3.

[4] Pearce, A.R., Mitra, C., Fiori, C.M., Short, K.M., and **Langar, S.** (2011). "A Benchmarking System for Sustainable Practice through Student Internships." *Abstract and poster presentation at the 27th Annual Research Symposium*, Blacksburg, VA, March 23.

[5] **Langar, S.,** and Pearce, A.R. (2011). "A BIM Analysis: Observing Adoption of Innovations towards Sustainability." *Abstract and poster presentation at the College of Architecture and Urban Studies: 2011 Faculty Research Symposium*, Blacksburg, VA, February 17-18.

[6] **Langar, S.**, and Mills, T. (2009). "Restorative Green Buildings." *Commonwealth Contractor*, Associated Builders and Contractors, 6.

[7] **Langar, S.**, and Pearce A.R. (2008). "Materials and their analysis." Lanford Brothers, Roanoke, VA.

[8] **Langar, S.**, and Pearce A.R. (2007). "Extension and Renovation of Headquarters for Lanford Brothers: Phase I." Lanford Brothers, Roanoke, VA.

Presentations and Guest Lectures *(2009 – Present)*

[P.1] **Langar, S.** (2016). "Assessment of Rest Areas and Welcome Centers for Resilience as per Total Cost of Ownership*." Mississippi Department of Transportation (MSDOT)*, Jackson, MS, USA.

[P.2] **Langar, S.** (2016). "Using Interactive Computational Technology to promote sustainability at grassroots levels." *Hattiesburg Sustainability Committee, Hattiesburg*, MS, USA.

[P.3] **Langar, S.** (2016). "Analyzing Design Process for Capital Projects that utilize Innovations towards Sustainability (ITS) or Building Information Modeling (BIM)." *International Conference on Sustainable Design Engineering and Construction (ICSDEC)*, Tempe, AZ, USA.

[P.4] **Langar, S.** (2016). "Analyzing Differences in Perceptions and Awareness about Residential Energy Conservation among Students in State Universities." *International Conference on Sustainable Design Engineering and Construction (ICSDEC)*, Tempe, AZ, USA.

[P.5] **Langar, S.** (2016). "Building Information Modeling (BIM) Outsourcing: Identifying Trends and Impacts on the Architecture Engineering and Construction (AEC) industry." *International Conference on Sustainable Design Engineering and Construction (ICSDEC),* Tempe, AZ, USA.

[P.6] **Langar, S.** (2016). "Sustainability and Beyond." *Sustainability Education Day*, The University of Southern Mississippi, Hattiesburg, US.

[P.7] Mohammed, H. M., and **Langar, S.** (2016). "Prevention through Design (PtD): Current State of Knowledge and Implementation in the Design Industry." *52nd Associated School of Construction International Conference*, Provo, UT, USA.

[P.8] Ghosh, S., and **Langar, S.** (2015). "A Cross-Sectional Study of the Perceptions of Large Contractors towards Prevention through Design." *51st Associated School of Construction International Conference,* College Station, TX, USA.

[P.9] **Langar, S.** (2015). "Rainwater Harvesting Technologies and Strategies (RwHTS) trends in the US and its Implementation by Designers Actively Utilizing Building Information Modeling (BIM)." *Engineering Sustainability 2015*, Pittsburg, PA, USA.

[P.10] **Langar, S.** (2014). "Non-Profit Residential Construction in Mississippi: Analysis of Habitat for Humanity." *50th Associated School of Construction International Conference,* Washington DC, USA.

[P.11] **Langar, S.** (2014). "State of Adoption for Building Information Modeling (BIM) in the south-eastern United States." *50th Associated School of Construction International Conference,* Washington DC, USA.

[P.12] **Langar, S.** (2014). "Establishing Benchmarking of Framework for Contractors for building Zero Energy Buildings (ZEB) in U.S. Architecture/Engineering/ Construction (A/E/C) - A Case Study Approach." *50th Associated School of Construction International Conference,* Washington DC, USA.

[P.13] **Langar, S.** (2013). "Building Information Modeling (BIM) adoption for designers and contractors." *Building Information Modeling (BIM) Seminar,* The University of Southern Mississippi, MS, USA.

[P.14] **Langar, S.** (2012). "Comparative Analysis of LEED-NCv3.0 with LEED-NCv2.2" *International Conference on Sustainable Design and Construction: Developing the Frontier of Sustainable Design, Engineering, and Construction, Dallas*, TX, USA.

[P.15] **Langar, S.** (2011). "Performance assessment of alternative composite earth wall panels." *The 6th World Sustainable Building (SB) Conference*, Helsinki, Finland.

[P.16] **Langar, S.** (2011). "Sustainable Innovations and their Routinization in the Public Sector Facilities." *The 6th World Sustainable Building (SB) Conference.* Helsinki, Finland.

[P.17] **Langar, S.** (2011). "Routinization of Sustainable Facility Innovations in Public Sector." *College of Architecture and Urban Studies: 2011 Faculty Research Symposium*, Virginia Tech, VA, USA.

[P.18] **Langar, S.** (2011). "A BIM Analysis: Observing Adoption of Innovations towards Sustainability." *College of Architecture and Urban Studies: 2011 Faculty Research Symposium*, Virginia Tech, VA, USA.

[P.19] **Langar, S.** (2011). "Survey research method and its application in construction research." *Course CNST 5084: Methods of Construction Research*, Virginia Tech, VA, USA.

[P.20] **Langar, S.** (2010). "Evaluating tradeoffs for the use of sustainable strategies in parking facilities." *Course BC 5144: Sustainable Civil Infrastructure Systems*, Virginia Tech, VA, USA.

[P.21] **Langar, S.** (2010). "Adoption and implementation of LEED for public sector projects." *Course BC 3116: Construction Culture II - Construction & Society*, Virginia Tech, VA, USA.

[P.22] **Langar, S.** (2010). "Adoption of Innovations Towards Sustainability." *Mike Horman Sustainable Construction Symposium*, Virginia Tech, VA, USA.

[P.23] **Langar, S.** (2009). "Use of sustainable strategies at residential level." *Course BC 5134: Sustainable Facilities Systems*, Virginia Tech, VA, USA.

Teaching Activities

Assistant Professor, The University of Southern Mississippi (USM) *(August 2013 - Present)*

1. Application of Construction Law (BCT 478)

This course is designed for students to attain the skills of contract administration and knowledge regarding construction contracts and legalities. The principles of construction law are the course emphasis, including how these principles affect the construction manager. The course encourages students to understand the legal implications and solutions for issues faced within the construction industry through readings, case studies, discussions, and various exercises, emphasizing the duties, rights, best practices, and liabilities of stakeholders in construction projects.

Academic Term	Delivery Mode	Credit Hours	Student Enrollment
Fall 2016	Face-to-Face	3	21
Fall 2016	Online	3	51

2. Architecture Studio II (ACT 364)

The course focuses on understating and analyzing sustainable strategies, the impact of sustainable design, analyzing sustainable strategies at the micro level and designing an ecologically, and socially responsive design solution about geographical context. Students also explore the concept of resilience and integrate it into their design projects. Students at the end of the course develop a set of architectural drawings and model (physical and virtual) that illustrates architectural style and elements that must be adhered by the contractor.

Academic Term	Delivery Mode	Credit Hours	Student Enrollment
Fall 2015	Face-to-face	4	12

3. Architecture Studio III (ACT 400)

This course includes evaluating codes, site conditions, and developing an architecturally defined set of building standards for design based on architectural research & precedence. The design project integrates principles of sustainable and regenerative design on the existing urban fabric. Additionally, the course evaluates impacts of sustainable development on an urban level.

Academic Term	Delivery Mode	Credit Hours	Student Enrollment
Fall 2015	Face-to-Face	6	9

4. Building Information Management (ACT 450)

This course is designed to provide students with an overview of BIM technology, theory, and application throughout the project lifecycle. Also, students learn about advanced topics covering BIM use from project planning through building occupancy & maintenance. Students also gain an understanding of using BIM as collaborative software tools to perform analysis of building design (from 3D, 4D, 5D, and 6D).

Academic Term	Delivery Mode	Credit Hours	Student Enrollment
Spring 2016	Face-to-Face	3	11
Spring 2016	Online	3	10

5. Building Systems II (BCT 336)

This course intends to introduce and familiarize students with various building systems associated with a facility. Also, the course familiarizes students with the impacts of externalities such as environment, human performance, technology, economy, and others on the building system. Further, the course encourages students to critically analyze and holistically evaluate building systems and realize the trade-offs associated with its adoption.

Academic Term	Delivery Mode	Credit Hours	Student Enrollment
Summer 2015	Online	3	7
Spring 2015	Online	3	64
Spring 2015	Face-to-Face	3	28
Fall 2014	Face-to-Face	3	19
Spring 2014	Online	3	39
Fall 2013	Face-to-Face	3	24

6. Construction Organization (BCT 174/374)

The course discusses concepts that are critical towards starting and operating a construction company and introduces techniques that can be utilized in the current market scenario. The course also provides an understanding of business ownership, company organization, ethics, teamwork, construction contracts, bidding, insurance, bonds, accounting, and scheduling, by allowing the students to manage a construction company in a virtual world that mimics the real world dynamics. A group of students administers the company for a semester and various parameters such as profit, success, reputation, and others are used to gauge the success of the enterprise.

Academic Term	Delivery Mode	Credit Hours	Student Enrollment
Summer 2016	Online	3	53
Fall 2015	Face-to-Face	3	34
Fall 2015	Online	3	103
Fall 2014	Face-to-Face	3	20
Spring 2014	Online	3	41
Fall 2013	Face-to-Face	3	27

7. Construction Project Management (BCT 477)

This course aims to investigate the general concepts of project management with emphasis on the construction industry. The course enables a better understanding of construction projects and associated stakeholders by requiring students to operate in teams. In this process, the students are required to create a project management plan for a proposed construction project. The instructor decides the complexity of the proposed project. Some of the important concepts that are dealt with in detail during the semester are project delivery, procurement strategies, sustainability, scheduling, bidding, project organization, project planning, leadership, and safety.

Academic Term	Delivery Mode	Credit Hours	Student Enrollment
Fall 2014	Face-to-Face	3	15
Spring 2014	Online	3	31
Fall 2013	Face-to-Face	3	8

8. Engineering Economics (AEC 390)

The course discusses methods used for determining the comparative financial desirability of engineering alternatives. Students learn how to choose between options and where the outcomes are measured in monetary units, in the process helping them make an informed decision from the identified unit of analysis. Topics include principles of economic equivalence; time value of money; analysis of single and multiple investments; comparison of alternatives; capital recovery and tax implications; certainty; uncertainty; risk analysis; and break-even concepts.

Academic Term	Delivery Mode	Credit Hours	Student Enrollment
Fall 2016	Online	3	100

9. Estimating II and Lab (BCT 455/L)

The course enables students to acquire skills for the development of construction estimates. Further, students identify and understand estimate type and class, activities associated with assembling a complete bid package. In this process, general conditions, overhead costs, labor, material, equipment, and subcontractor costs are determined. Also, students realize the impact of externalities such as competition, risks, material price variations, and market condition(s) on a bid.

Academic Term	Delivery Mode	Credit Hours	Student Enrollment
Spring 2015	Face-to-Face	3	6

10. Seminar-LEED (AEC 300)

The course is designed to provide an overview of green buildings, technologies, and strategies that stakeholders can implement to reduce the impact, and the process of LEED certification for green buildings. Students learn about the importance of green buildings, measurement systems, LEED certification of Green buildings, and credits associated with LEED. The course also prepares students for the LEED GA exam.

Academic Term	Delivery Mode	Credit Hours	Student Enrollment
Spring 2016	Online	1	72

11. Special Studies

The course offers students the ability to conduct research in specialized areas. Faculty in this course guides the students to achieve the identified research objectives.

Academic Term	Delivery Mode	Credit Hours	Student Enrollment
Fall 2016	Face-to-Face	1	1
Fall 2016	Online	3	1
Spring 2016	Face-to-Face	1	1
Fall 2015	Face-to-Face	1	1
Spring 2014	Face-to-Face	1	1
Fall 2013	Face-to-Face	1	1

Instructor, The University of Southern Mississippi (USM) *(2012 - 2013)*

1. Construction Organization (BCT 374)

The course discusses concepts that are important towards starting and operating a construction company and identifies techniques utilized in the current market scenario. Certain topics introduced in this course are taught subsequently to the students in-depth during the rest of the undergraduate curriculum. The course provides an understanding of business ownership, company organization, ethics, project delivery, bidding, insurance, bonds, accounting, scheduling, labor laws, and project safety.

Academic Term	Delivery Mode	Credit Hours	Student Enrollment
Spring 2013	Online	3	39
Fall 2012	Face-to-face	3	24

2. Construction Project Management (BCT 477)

The course aims to investigate the general concepts of project management, develop a better understanding of construction projects and associated stakeholders, by making them operate in teams. Some of the important concepts dealt with in detail during the semester are project delivery methods, bidding, schedules, cost control, project organization, risk management, and project planning.

Academic Term	Delivery Mode	Credit Hours	Student Enrollment
Summer	Face-to-face	3	1
Spring 2013	Online	3	33
Fall 2012	Face-to-face	3	13

2,664 Cr. Hrs. Taught (Fall 2012- Present) with an average student evaluation of 4.2 (Out of 5.0)

Graduate Teaching Assistant, Virginia Tech. *(2007 – 2011)*

1. Construction Principles I (BC 5514/2014)

August 2007 – May 2008

Graduate and undergraduate level course (Face-to-face)

Professor in charge: Dr. Annie Pearce

This course aimed to introduce the fundamentals of construction technology and processes while emphasizing the materials, methods, techniques, and sequences for the construction of a facility. Planning, scheduling, introduction to the various construction and sustainable technologies, and quantity takeoff for the management of construction resources were among the topics taught in this course. As a Teaching Assistant, some of the main responsibilities included creating assignments, conducting evaluations of the assignments submitted, supporting the professor for classes, and providing logistical support for the guest lecturers. Additional support was given to guide students with assignments and help them understand various concepts that they might not have understood in the class.

2. Building Information Modeling for Collaborative Construction Management (CE 5399/ BC5354)

January 2010 – May 2010

Multi-disciplinary graduate level course (Face-to-face and Online)

Professor in charge: Dr. Ki-Hong Ku and Dr. Burcin Becerik-Gerber

The course offered students of both universities (Virginia Tech and University of Southern California) a unique platform to learn and understand the process of collaboration followed by the construction industry, using Building Information Modeling (BIM) by requiring them to collaborate and assume roles of different stakeholders associated with the project. The course introduced the principles of integrated design and design development within advanced digital environments, construction automation, and parametric modeling in the context of advanced solid and surface modeling tools. This course was taught online and face-to-face by the instructors from both sides of the university and had guest lecturers from software companies such as Autodesk and Bentley. As one of the Teaching Assistants, the responsibilities included developing and grading assignments that challenged the student's understanding of the software, conducting evaluations for the submissions, planning logistical support for guest lecturers, and supervising students.

3. Sustainable Facility Systems (BC 5134)

August 2010 – December 2010

Graduate level course (Face-to-face)

Professor in charge: Dr. Annie Pearce

This course offered an introduction to the means and methods utilized to achieve sustainability within a built environment. The course further introduced best practices utilized at the various stages of the project, i.e. from project inception to occupancy. These best practices included concepts such as parameters for development and design of the site, project management, energy efficiency, water conservation, green building materials, indoor environmental quality, and others. Various green building assessment tools like Leadership in Energy and Environmental Design (LEED) were introduced to the students, along with the introduction of economic analysis of green building alternatives. Apart from helping the professor conduct the class, the responsibilities also included arranging a class trip to the Green Building Conference and Expo in Chicago 2010 that was aimed to help students analyze and enhance their understanding of green technologies and systems.

Industry Activities *(2003 – 2006, and 2012)*

Building Information Specialist, Manuel Builders, Louisiana, USA

January 2012 – May 2012

Manuel Builders is a residential design-build company, located in Lafayette, Louisiana, with an annual business volume of about 20 Million USD. The main aim of interning with the company was to implement the concepts of lean and BIM (Building Information Modeling) both at project and organization level. Also, the profile also included recommending measures to enhance efficiency, accuracy, and productivity of employees within all departments. Furthermore, another important aspect of the internship aimed to set a course for the company, to become a prominent leader in the field of information technology within design and construction. To accomplish the identified goals, interactions were enhanced between all departments within the company to understand their respective strengths and weaknesses and recommend a platform that paved the way for company-wide implementation of BIM. This included drafting a BIM implementation guide for the company and recommending software for various departments that were not only interoperable but also parametric in nature. The recommendations resulted in enhanced efficiency (approximately 25%), reduced errors, and redundancies that were identified initially. Moreover, the recommended workflow promoted higher cross-departmental integration.

Project Architect, Metaphor, India

March 2005 – July 2006

Clients: Wipro Information Technology Park, Farm House, and Commercial Complexes, India

Metaphor architect is one of the leading organizations in India, specializing in design and landscape for large commercial projects and information technology parks. The responsibilities included management of design and construction sites. Also, requirements of other stakeholders associated with the project were identified and addressed. Regular meetings with clients and other stakeholders were conducted to ensure that the project was on track, and all the aspirations of the owner had been accomplished. It meant an active involvement in the pre-construction process, estimation, and site management. Apart from managing the design team and allocation of resources, the responsibilities also included generation of construction documents and submittals for municipal approvals.

Junior Architect, Ravindra Bhan and Associate, India

January 2004 – February 2005

Clients: Restoration of public space, Design, and Extension of Children's Play Area and Religious Complexes, India

The firm specialized in landscape architecture and design of ecological projects, which included new construction and restoration projects. As a Junior Architect, principal responsibilities included developing construction documents, overall project schedules for the client and the contractor, and providing design solutions to maximize space utilization with optimal use of natural ventilation. Also, the firm assigned the responsibility of evaluating projects executed in the past to analyze the long-term feasibility of green solutions and human impacts on the project. The recommendations generated from this process were incorporated into future projects.

Trainee Architect, Sthapatya Architects, and Town Planners, India

June 2003 – December 2003

Clients: Jawaharlal Nehru Port Trust & Low-Cost Housing, India

The firm specialized in projects at the urban level and individual architectural projects. The major responsibilities of the profile included drafting municipal drawings, monitoring site execution, and responding to RFI's initiated by stakeholders. Additionally, assistance was provided in the preparation of construction documentation, project scheduling, and budgeting for the major components of the project. Apart from the prime job responsibilities, assistance with data collection was provided for principal architect's book.

Student Thesis Adviser *(August 2013-Present)*

1. Fountain, J. (Expected 2016). "Building Information Modeling Outsourcing Vs. in-house: Best Practices for BIM implementation." Honors Thesis, Department of Interdisciplinary Studies, The University of Southern Mississippi, Hattiesburg, MS. *(Awarded Eagle Scholars Program for Undergraduate Research: SPUR)*

2. Harris, M. (Expected 2016). "Design Studio Culture Policy in ABET Accredited Architectural Engineering Technology (AET) Programs." School of Construction, The University of Southern Mississippi, Hattiesburg, MS. *(Awarded Eagle Scholars Program for Undergraduate Research: SPUR)*

3. Doleac, A. (2014). "Greening Non-Profit Residential Construction: An Analysis of Habitat for Humanity in Mississippi." Honors Thesis, Department of Interdisciplinary Studies, The University of Southern Mississippi, Hattiesburg, MS.

Service

School of Construction

Member of School of Construction Curriculum Committee, USM *(2016)*
Member of School of Construction Faculty Search Committees, USM *(2016)*
Member of School of Construction Director Search Committee, USM *(2015)*
Member for the Student Scholarship Committee, School of Construction, USM *(2014-Present)*
Advised approximately 80-95 undergraduate students every semester *(2013-Present)*
Organized Building Information Modeling (BIM) Seminar, USM *(2013)*
Member of School of Construction Director Search Committee, USM *(2013-2014)*
Facilitated student site visits and company visits *(2016-Present)*

University of Southern Mississippi (USM)

Reviewer for Eagle Scholars Program for Undergraduate Research, USM *(2016)*
Faculty Affiliate of Center for Undergraduate Research (CUR), USM *(2015-Present)*
Member of University Climate Commitment Council, USM *(2013-Present)*

Journal/Conference Reviewer

Session Chair for *International Conference on Sustainable Design Engineering and Construction (ICSDEC)*
Reviewer for *Journal of Cleaner Production* *(2016-Present)*
Reviewer for *Journal of Green Building* *(2016-Present)*
Reviewer for *Enquiry: A Journal for Architectural Research* *(2016-Present)*
Reviewer for *Journal of Construction Engineering and Management (ASCE)* *(2015-Present)*
Reviewer for *Construction Research Congress (CRC)* *(2015-Present)*
Member of Editorial Board for the *Journal of Sustainable Buildings* *(2015-Present)*
Reviewer for *The Associated School of Construction International Conference (ASC)* *(2013-Present)*
Moderator for *The Associated School of Construction International Conference (ASC)* *(2014-Present)*
Member of the Editorial Board for the *Journal of Architecture & Environment* *(2013-Present)*

Jury Member

Jury member for Associated Builders and Contractors (ABC) Inc. merit award, USM *(2012-2014)*
Jury member for ABC Pelican Chapter Excellence, USM *(2012-2016)*

Mentor

Faculty adviser for United States Green Building Council (USGBC) student chapter, USM *(2013-Present)*

Service to the community/industry

Member of *Development Committee,* American Council for Construction Education (ACCE) *(2016-Present)*
Member of the *Recognition Committee*, ACCE *(2016-Present)*
Member-in-Training for *Accreditation Visits*, ACCE *(2016-Present)*
Member of Hattiesburg *Sustainability Committee*, MS *(2016-Present)*
Participant for first un-build project in the US with *Habitat for Humanity*, Blacksburg, VA *(2013)*
Member of the *Graduate Health Committee*, Virginia Tech *(2011)*
Student representative for the Dept. of Building Construction in the interdisciplinary project called Current Connections: A Community Arts Project, Virginia Tech *(2011)*
Graduate Student Advisor for the *Indian Student Association* (ISA), Virginia Tech *(2011)*
Vice-President and founding member of Construction Research Society, Virginia Tech *(2011)*
Elected President of the Indian Student Association (ISA), Virginia Tech *(2009-2010)*

Software Skills

Adobe Suite	ArchiCAD	Assemble
AutoCAD	Camtasia	Common Point 4D
Digital Project	Ecotect	Equest
Green Building Studio	Horizontal Glue	MS Office
MS Project	Navisworks	Procore
Primavera	Revit	Sketch Up

Professional Affiliations and Certifications

1. LEED™ Accredited Professional, USGBC, USA
2. Member, American Council for Construction Education (ACCE)
3. Associate Member, American Society of Civil Engineers (ASCE)
4. International Associate, The American Institute of Architects, (AIA)
5. Registered Architect, Council of Architecture (COA), India
6. Procore Certified Associate, USA
7. Sigma Lambda Chi, Beta Chapter, USA