

# The Discipline of Transportation Engineering

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Transport engineering or transportation engineering is a broad, multidisciplinary field involving the science of safe and efficient movement of people and goods by land, air, and sea. Transportation engineering is a sub-discipline of civil engineering.<sup>1</sup>

Transportation engineering encompasses a wide variety of issues and areas, including the design of streets, highways and intersections; mass transit systems; urban planning; traffic control systems and devices; travel demand and traffic flow; sizing of transportation facilities; operations and management for roadways; highway sign visibility; traffic congestion and safety hazards; and the management and economics of transportation systems.<sup>2</sup>

The planning aspects of transportation engineering involve urban planning and technical forecasting decisions while the design aspects include the sizing of transportation facilities (lanes and facility capacity issues) as well as designing the geometry of the roadway. Likewise, the operations and management involve traffic engineering, so that vehicles move smoothly on the road or track.<sup>3</sup>

Transportation Engineering is such a comprehensive field that the Florida Department of Transportation (FDOT) has developed a Professional Engineering Training Program specifically designed for graduate engineers to pursue a career path in this discipline. The primary purpose of the program is to provide graduate civil engineers with broad, practical experience in the field of transportation engineering, in order to become a registered and licensed Professional Engineer in the State of Florida.<sup>4</sup>

The total Professional Engineer Training Program is a four-year program divided into two phases, encompassing all aspects of the Department's operations which prepares the trainee for a role in FDOT's organizational leadership. The first phase is the Engineer Training (ET) Program. This is a 24-month rotational assignment encompassing all aspects of the Department's work. The second phase is the Senior Engineer Training (SET) Program. This is a 24-month

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<sup>1</sup> [http://en.wikipedia.org/wiki/Transportation\\_engineering](http://en.wikipedia.org/wiki/Transportation_engineering)

<sup>2</sup> Handbook of Transportation Engineering, Myer Kutz, Editor, McGraw-Hill Handbooks, November 17, 2003.

<sup>3</sup> [http://en.wikipedia.org/wiki/Transportation\\_engineering](http://en.wikipedia.org/wiki/Transportation_engineering)

<sup>4</sup> <http://www.dot.state.fl.us/projectmanagementoffice/PETTraining/default.shtm>

internship combining on-the-job training in both the technical and managerial functions of a specific work area in the Department.<sup>5</sup>

To be eligible for the Engineer Trainee position, applicants are required to have the following minimum qualifications:

1. A Bachelor of Civil Engineering or Bachelor of Science in Civil Engineering Degree from a university accredited by the Accreditation Board for Engineering and Technology (ABET);
2. Be a United States citizen or a lawfully authorized alien worker. This does not include sponsorship or practical training;
3. Be registered to take the Fundamentals of Engineering examination as administered by the Florida Board of Professional Engineers, or the equivalent examination administered by another state within the United States, prior to appointment; and
4. Not more than two years of post graduation engineering experience. Candidates with more than two years of engineering experience may qualify for a Senior Engineer in Training position. Candidates with up to two years of engineering experience may have a portion of this experience applied to a Senior Engineer in Training position upon successful completion of the Engineer in training portion of this Program.<sup>6</sup>

Undoubtedly, transportation engineering is an emerging discipline encompassing the analysis, planning, design, construction, operation, and management of integrated transportation systems. As we look towards building upon and improving Florida's infrastructure and roadway systems, we must also look towards increasing the education of our workforce to include engineers in this field of study.

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<sup>5</sup> <http://www2.dot.state.fl.us/proceduraldocuments/procedures/bin/250015015.pdf>

<sup>6</sup> Id. Note: The P.E. Training Program is not open to registered professional engineers, individuals currently qualified for registration, or those who have more than two years of post graduation engineering experience. Additionally, for continuing eligibility all appointees to this program must obtain the Engineer-In-Training (EIT) certificate within twelve (12) months of appointment. Failure to do so will result in dismissal from the program.