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COM 101-48C  
Speech Outline  
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- I. Introduction:
  - a. Brief background of civil engineering and its importance.
  - b. Every structure on land, sea and air – things most people take for granted – were created by civil engineers. (Give examples.)
  - c. Thesis Statement: Civil engineering is one of the most important branches of engineering and is the second oldest.

II. Body

- a. Main Point 1: Building infrastructure.
  - i. Subpoint 1: feasibility studies. Feasibility studies determine whether a structure is necessary or possible and may involve decisions such as whether to build a covered bridge or a tunnel in the case of a water crossing, etc. Feasibility studies are concerned with engineering problems and economic questions as well (such as, “Can we afford it?”) Civil engineers map out the project, calculate construction costs in terms of materials and equipment needed, time and labor, etc.
  - ii. Subpoint 2: site investigations. Site investigation involves studies of ground and substructure. Civil engineers test the soil, the stability of the ground, and determine what building materials will be required—such as concrete, asphalt and steel—to make sure of the adequacy and strength of the foundation.
  - iii. Subpoint 3: design. Design can be based on hydraulics, thermodynamics or nuclear physics.
- b. Main Point 2: Government Approval
  - i. Subpoint 1: A civil engineering project first needs a permit from state and federal agencies to verify that the project complies with regulations.
  - ii. Subpoint 2: Civil engineers also use design software in transportation and hydraulic systems to comply with government standards.

A1: Transition: I will now move on to where civil engineers work.

- c. Main Point 3: Different branches of Civil Engineering.
  - i. Construction engineering: responsible for construction projects such as design, schedules and safety.
  - ii. Geotechnical engineering: responsible for building solid, stable structures; for examining the stability of soil and rock; for designing the slope of walls and tunnels.

- iii. Structural engineering: responsible for design projects for buildings, dams, and bridges to ensure strengths and stability.
- iv. Transportation engineering: responsible for designing highways, airports, streets and ship ports.
- v. Civil engineers work in offices, but construction engineers work most of the time at construction sites to monitor operations and solve problems.

B1: Transition: Now I will move on to how to become a civil engineer.

- d. Main Point 4: Becoming a Civil Engineer
  - i. Subpoint 1: Qualifications  
Civil engineers need a professional engineering (PE) license after obtaining an ABET (bachelor's) degree, and need to develop good decision-making skills for estimating financial costs and safety concerns.
  - ii. Subpoint 2: Qualities  
Civil engineers must make good decisions based on their knowledge and experience.
- e. Main Point 5 – Job Prospects
  - i. Jobs for civil engineers will grow 8% between 2014-2024, the fastest average of all occupations.

C1: Transition: Let me now conclude.

- III. Conclusion: It is important to remember that Civil Engineering is the second oldest branch of engineering, and that it affects all aspects of our lives whether on land, in the air, or on the water. It is an important profession that many of us do not fully appreciate.

## References

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- U.S. Department of Labor, Bureau of Labor Statistics, Office of Occupational Statistics and Employment Projections. (2017). Civil engineers. *Occupational outlook handbook*. Retrieved from <https://www.bls.gov/ooh/architecture-and-engineering/civil-engineers.htm>