

CRIME SCENE DO NOT CROSS

Forensic Engineering



Education	Bachelor's degree in engineering
Job Skills	Communication, critical thinking, attention to detail, mathematics
Median Salary (2016)*	\$81,536
Job Growth (2014-2024)**	4% (all engineers)

Source: *PayScale.com **U.S. Bureau of Labor Statistics



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Science of Newton's Laws of Motion

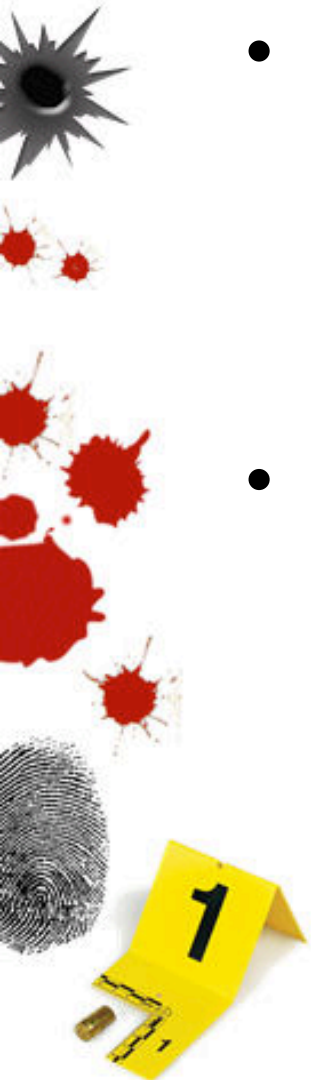
- First Law of Motion
- Second Law of Motion
- Third Law of Motion



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Forensic Engineering

- Forensic engineers apply scientific methodology to investigate the failures of materials, components, products and structures.
- Forensic engineers are usually called upon to isolate the specific reason or reasons a product, device or substance failed in order to improve the longevity or performance of the product or to improve its safety profile.



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Forensic Engineering

- Forensic engineers often are used in product liability cases, a type of civil court case and, occasionally, criminal cases, to investigate and testify about the source of a product's design or an object's failure.



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Forensic Engineering

- Forensic engineering applies the field of engineering to cases of the law when necessary.
- As previously mentioned, this means that a forensic engineer is called to a scene where a car, aircraft, bridge, or piece of machinery has malfunctioned in order to collect evidence, investigate the cause, and testify in court if needed.



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Forensic Engineering

- The responsibility of a forensic engineer is broken up into two roles:
 - Detective
 - Engineer



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The Detective Role

- The forensic engineer, with the help of law enforcement, looks for clues about what happened and looks for evidence to achieve certainty about what exactly occurred.

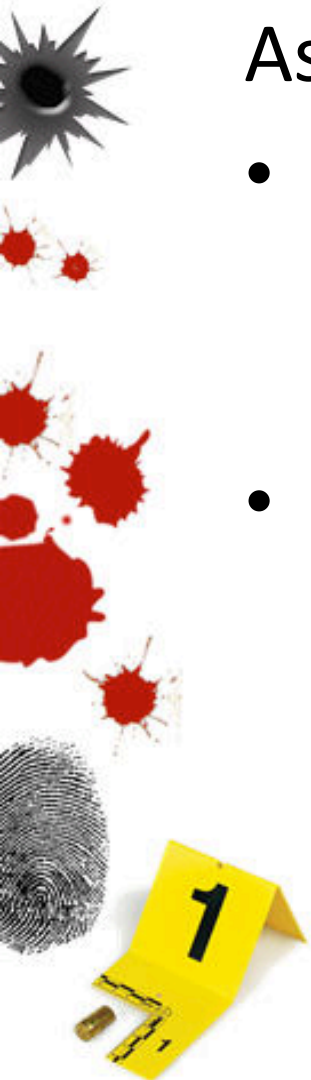


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The Detective Role

As an example:

- In the case of a car crash, the vehicle or the vehicles are the most important evidence.
- This is because the vehicles involved can help determine the angle of impact, the speeds involved, and whether or not seat belts were used.



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The Engineering Role

- The engineering role is when the real investigative part of a forensic engineer's job.



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The Engineering Role

For example:

- Through crash tests — tests involving cars specially designed to hit concrete barriers at various speeds — engineers can determine how fast the car was going at the time of the crash.



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The Engineering Role

- As well as investigating the vehicle's movements in a crash it is also important for the forensic engineer to study the movements of the passengers before, during, and after the crash.



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The Engineering Role

- It is important to study the occupant movement to help determine the cause of injury, because the peak acceleration of the head and neck can be greater than the peak acceleration of the vehicle involved.



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The Engineering Role

- The evidence that has been found by the forensic engineer can then be used in court.
- Common examples of cases where this kind of evidence could be used are personal injury or product liability cases.



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Questions Forensic Engineers Must Consider When Investigating Cases

It is important that Forensic Engineers consider the following questions when investigating cases:

1. What happened?
2. Why did it happen?



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Questions Forensic Engineers Must Consider When Investigating Cases

3. What should the engineers have done in order to prevent it from happening?
4. What would new engineers need to concern themselves with to make sure nothing like this happens again in the future?



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How to Become a Forensic Engineer

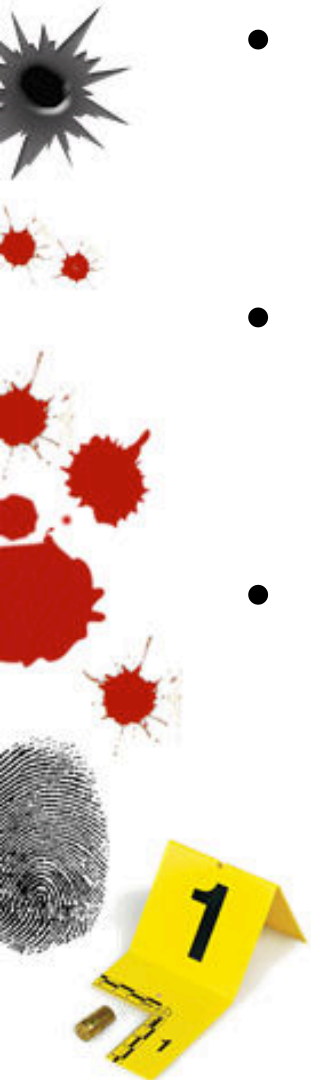
- To become a forensic engineer, one must earn a bachelor's degree in engineering.
- This is typically a four year program. Finding a school with classes pertaining to forensic engineering can be difficult, so extensive research is required while applying to colleges.



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How to Become a Forensic Engineer

- Once a bachelor's degree in engineering is earned, one must become a licensed engineer in his or her state.
- Once a new graduate is licensed, they can progress towards becoming a forensic engineer.
- This is a one year process and requires the applicant to demonstrate experience in forensic engineering, demonstrate proficiency in technical knowledge and ethics, and pass an oral and written exam.



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How to Become a Forensic Engineer

- Once one becomes a forensic engineer, one can work in several different places.
- A forensic engineer can be hired by a government agency, such as a police force, or by a car company that makes cars.
- Some forensic engineers teach on the side, serving as forensic engineer consultants.

