

Packaging for students
with a Mechanical
Engineering
mindset...



Packaging Systems and Design

packaging.sbio.vt.edu

For students interested in global industry...

Due to the advancements of technology and transportation, the world is becoming more connected than ever. Every year, 775 million sea containers and 89 billion parcel shipments are transported across the globe. Each of these shipments could contain sensitive electronics, LED TVs, food products, or even lifesaving vaccines.

To design a successful package, packaging engineers need to understand the hazards that packages will experience during global distribution. This process involves placing sensors on the different transportation modes and recording shock, vibration, temperature and relative humidity. The next step of the design process is to use conventional packaging materials such as foams, corrugated boxes, wooden crates, or new innovative materials such as mushroom based foams, biodegradable plastics, or high-performance foams to design a packaging system that will protect fragile products during their trip to the customer.

The role of a packaging engineer is highly multidisciplinary because, for a packaging system to work effectively, the packaging engineers need to involve logistics operators, manufacturing engineers, product designers, and marketing professionals.

Virginia Tech's packaging curriculum is designed to train problem solvers who will be able to work in this multidisciplinary environment. Our students learn about supply chain management and distribution systems so that they are able to understand the global distribution process and effectively communicate with warehousing and logistics

professionals. They get experience in designing protective and industrial packaging systems that fit into specific distribution modes. In addition, our students gain information on the performance characteristics of different materials, marketing and consumer perceptions, graphical design, and circular economy principles.

During their time at Virginia Tech, our packaging students have the chance to work in our packaging laboratory on real life packaging improvement projects. Our laboratory is an Amazon certified facility; thus, our students frequently work on products that will be shipped in Amazon's supply chain. They use vibration tables that simulate the movement of a trailer, drop testers that simulate manual handling, and impact testers that simulate impacts experienced in rail cars.

Job Opportunities: Students who have an interest in distribution packaging commonly work for companies such as **Tesla, HP, IBM, Exxon, BMW, Amazon, ABF freight, Newell brands** or any other company that manufactures and ships products. Their jobs focus on optimizing packaging materials in order to reduce the cost of the packages, reduce shipping costs, eliminate damages to products, and increase the sustainability of packaging solutions.

Starting salaries range from \$60-\$120K based on a recent alumni survey.



COLLEGE OF NATURAL RESOURCES AND ENVIRONMENT
SUSTAINABLE BIOMATERIALS
VIRGINIA TECH.

The role of packaging engineers is to make sure their products arrive at their destinations, without damage, for the lowest possible cost!

Transfer Credits:

The Packaging Systems and Design degree offers a lot of flexibility to transfer students to tailor their education and also to allow them to graduate on time. Our **32 free elective credits allow you to transfer classes that you already took** and count it towards your graduation progress. This allows many students to graduate on time even after changing their major.

Example courses:

- SBIO 3224 – Packaging Distribution Systems
- SBIO 4024 – Packaging Design for Global Distribution
- SBIO 4224 – Industrial Packaging

To learn more about the PSD degree:



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Meet with our professional advisor to learn about the degree requirement and transfer credits.



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