

Innovative Teaching Pedagogies for Aircraft Materials Construction and Repair II (Composites)

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She began her academic career as Instructor I from 2014 to 2018, demonstrating strong commitment and competence in technical instruction. In recognition of her professional growth and contributions, she was promoted to Instructor III in 2021, and subsequently attained the rank of Assistant Professor II in 2023, which she presently holds.

Introduction to Innovative Teaching Pedagogies

When we talk about innovative teaching, we mean new methods that are used for educational purposes that allow students to learn more efficiently and actively participate in the process. Therefore, the innovative learning process will be discussed in terms of aircraft materials. Composites are materials constructed from individual substances, such as carbon or glass fibers, sand, textiles, or polymers. Nowadays, they are widely used in aircraft manufacturing for their durability, lightweight, and resistance to environmental factors (Lamberti et al., 2024). Aircraft Composite Materials are constantly evolving to meet the demands of modern times. They improve fuel efficiency and overall aircraft lifetime.

However, students should learn all beneficial factors of these materials to succeed in their future careers.

To understand students' knowledge of aircraft composites, educators need to use innovative methods that help students become more deeply acquainted with the subject. One way to ensure students learn more about the material is to let them dive into the subject.

Allow students to explore the world of composite materials used in aircraft construction and repair through active learning. This can allow students to work on experiments, study with their classmates, and complete hands-on projects outside the classroom.

Active Learning Strategies

Active learning strategies would be ideal for studying aircraft materials, as they allow students to participate more in the learning process. Problem-based learning can allow students to work with their peers to solve real-world problems. Learners will have to apply what they know about aircraft construction and repair to create a mock-up of an idea they can present to their classmates. Through this process, they will learn to think critically and work as a team to solve complex problems.

Collaborative projects will allow students to learn with one another. Students should pair up to complete a project that allows them to study different kinds of aircraft materials and test them in flight.

Allowing students to learn in this manner will keep them engaged and help them feel comfortable in the classroom. Students will feel comfortable enough to think outside of the box and learn more about the world around them when they enter the workforce. With students working collaboratively and staying engaged, we can now examine how technology can play a role in teaching them about aircraft materials.

Technology-Enhanced Learning

Technology can be one of the most useful teaching tools for student learning. There are many simulations that can help students feel as if they are in real-life scenarios. Whether it is a virtual reality scenario or online modules, students can access information at their fingertips. If we relate this to aircraft materials, we could create a virtual reality experience that allows students to learn how different materials can affect an aircraft in flight.

Not only can students get hands-on with technology, but they can also learn from the comfort of their homes. Providing students with online sources to study will help them learn more about different aircraft materials. Creating a collaborative environment where students can help and learn from one another will make them more engaged and eager to learn.

Although technology can be a very useful tool for students. Teachers should include assessment methods to ensure that students are learning the material properly.

Assessment and Feedback Mechanisms

Assessments and feedback are a crucial part of the learning process. Formative assessments should be used throughout the learning process. This will allow the teacher to see whether students understand the material while there is still time to improve. If students are learning about aircraft materials, the teacher can create small activities that would replicate real-world scenarios.

Having students participate in peer review can help not only with student engagement but also with learning. When students assess each other's work, they can learn from one another. Not only will students be engaged, but they will also feel part of a community where everyone supports one another.

Students should also be encouraged to self-assess. Self-assessment can be calibrated if students are given proper feedback mechanisms. Allowing students to reflect on their performance helps them better understand what they need to improve. Students can use rubrics to better understand what a perfect assignment should look like (Ibarra- Sáiz et al., 2020). Self-assessment training was also mentioned to help students with task selection, similar to how feedback mechanisms will support self-assessments in our module (Panadero et al., 2022). Allowing students to learn in this manner will give them a better understanding of the material. When students have a better understanding of what they are learning, they will perform better academically.

Creating an environment that fosters feedback will help students become better learners. As we think about how to continue to apply these tactics in the future, learning will.

Conclusion

To conclude, this essay was meant to teach you how to better adapt to your students. The points discussed included active learning, technology use, and assessment. All of these topics helped us understand how to better engage students and help them learn more about the world around them.

In the future, you should try to constantly think about how you can better adapt to your students. You should also try to give students as much experience as possible, whether in or out of the classroom. Experience can be gained through internships or by working in a setting similar to where your students will work. Not only should you try to give students experience, but you should also try to diversify the learning environment (Pawlak & Oxford, 2018).

This could mean bringing students out of the classroom to experience learning outside. All of these strategies will help students in the future

when they enter the workforce, but there are always additional strategies you can learn to help your students.

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