

Innovations in the Bioeconomy

Lesson 0: Course Outline

Introduction

Hello and welcome to this training course on Innovations in the Bioeconomy.

Many people now understand that the future resources needed to sustain and grow our societies and economies must be renewable and grown from biological sources.

This will move us away from our reliance on fossil fuels and its negative impacts on climate change and the natural environments and may transition us to a more equitable society.

But how will this need be met?

How can the products that we depend on so much be grown from biological resources?

The proverb

“Necessity is the mother of invention”

identifies necessity as key to driving the spirit of innovation.

This spirit of innovation, will be seen in the replacement of products such as plastics with bioplastics, chemical fertilisers with bio-fertilisers, petroleum and diesel with biofuels.

It will be seen in the manufacturing processes for pharmaceuticals being made from biological instead of chemical steps, energy being supplied from renewable sources instead of fossil fuels, and raw materials being replenished by recycled or reconfigured wastes.

New technologies will be used in IT, automation and big Data to speed up product design and manage resources in a smart, precise way.

Societal innovations will include community generation of biomass, local energy grids, eco-villages and city agriculture.

Political innovations will see the operation of open governance structures to ensure that biomass resources are being shared equally and that policies on food security, climate action and environmental protection are implemented.

In this course we will look at how innovation in biotechnology and bioconversion will be used to drive the bioeconomy.

On completion of this training course, you will be able to:

- Understand the history and evolution of biotechnology
- Understand how biotechnology is used to drive the bioeconomy
- Understand the anaerobic digestion plant process, components and its products
- Understand what a biorefinery is and what they produce
- Understand biorefinery platforms and processes
- Appreciate the benefits of small scale biorefineries
- Understand the need for knowledge- based farm decisions
- Understand agritech use for soil health, crop yield, animal health and emissions management

Who is this course for?

This course is ideal for those who are looking to study innovations in the bioeconomy

This course is also appropriate for those who wish to work in biotechnology or bioconversion processing.

The course is divided into 4 lessons:

- **Lesson 1: Biotechnology and Bioconversion Processes**
- **Lesson 2: Anaerobic Digestion Processes**
- **Lesson 3: Biorefineries**

- **Lesson 4: Agritech Innovations**

How to navigate the course

If this is your first course with People & Process Academy, be sure to look at “Studying with People & Process” before you begin. This short video shows you how to find your way around the lessons and modules.

Lessons are all presented in video format, and there's a transcript you can follow as you watch. If you like, you can download the video transcript to revise later on. In this course, each new lesson builds on previous information, so it's best to follow the lessons in order. Similarly, you should follow each module in sequence as you first go through the course. All registered users have unlimited access to video lessons and transcripts, and you can repeat each video as often as you like.

There's a discussion forum attached to this course. You'll find the discussion forum on the course homepage. In this forum you can chat to other students and leave questions and comments on the course.

If you have any difficulties navigating the course, see the support section for help.

The Assessment Method

There's a quiz at the end of each lesson to test your understanding of the material. To successfully complete this course, you must pass the quiz for each lesson. Once all the lessons have been completed, you can then download and print the People & Process completion certificate.

So, let's get started! In the next lesson entitled “Biotechnology and Bioconversion Processes” we will look at how biotechnology is driving product and process innovation.