



PROGRAMME
RPK-C 2025
POLYMER PROPERTIES



- March 07** *Three short introductory lectures on key physical properties of polymers and how they influence performance via processing and mechanics*
- 01a Introduction Physical Properties**
Dr.ir. Lambert van Breemen (TU/e) & Dr.ir. Tom Engels (Envalior-TU/e, NL)
 - 01b Introduction Polymer Processing**
Dr.ir. Lambert van Breemen (TU/e) & Dr.ir. Tom Engels (Envalior-TU/e, NL)
 - 01c Introduction Mechanical Properties**
Dr.ir. Lambert van Breemen (TU/e) & Dr.ir. Tom Engels (Envalior-TU/e, NL)
- March 14** *Lectures on the mechanical performance of polymers and polymer-based composites and how it can be influenced by production and processing*
- 02 Polymer Composites**
Dr.ir. Wouter Groeve (UT, NL)
 - 03 Long-term Failure of Load-bearing Thermoplastics “Dealing with the Inevitable”**
Prof.dr.ir. Leon Govaert (TU/e - UT, NL)
- March 21** *One lecture focusing in on polymer systems used to regulate the transmission of ElectroMagnetic fields, and one lecture on the physics of polymer crystallization and how it can influence and enhance properties:*
- 04 Polymer Nanocomposites for Electromagnetic Shielding**
Prof.dr.ir. Ruth Cardinaels (KU Leuven, BE)
 - 05 Crystallization of Polymers**
Dr. Jules Harings (UM, NL)
- March 28** *A set of lectures dealing with polymers that are used to regulate the transmission of small molecules (permeability), and polymer membranes with a focus on their processing, architecture and current and future applications..*
- 06 Permeation Properties of Polymer Materials**
Dr.ir. Alexander Stroeks (Envalior, NL)
 - 07 Membranes and Membrane Coatings**
Prof.dr. Wiebe M. de Vos (UT, NL)
- April 04** *A lecture discussing polymer adhesion, focusing on how polymer chemistry and physics can be used to control these properties, and a lecture on the properties of a polymer system required for 3D printing and the performance that can be achieved in the application:*
- 08 Polymer Materials for Adhesion**
Prof.dr. Marleen Kamperman (RUG, NL)
 - 09 Polymer Properties for and from 3D Printing**
Dr.ir. Arjen Bogaerds (Stratasys, NL)

April 11

Lecture on stabilizing polymers to extend their useful life, and a lecture focusing on the fast-developing field of polymer recycling and sustainability: what are the most promising routes based on the specific properties of a polymer system:

10 Stabilization and Degradation of Polymeric Materials

Dr. Pieter Gijsman (GijsmanDurabilityAdvisory, NL)

11 Towards Circular Carbo-Chemicals

Prof.dr. Jean-Paul Lange (Shell – UT, NL)

May 02

A set of lectures on advanced high-modulus/high-strength fibers each approaching the target of exceptional mechanical properties via different conceptual routes:

12 High Performance Fibers based on Flexible Chains

Dr. Harm van der Werff (Avient, NL)

13 High Performance Fibers based on Rigid Rod Molecules

Dr. Hanneke Boerstoeel (Teijin Aramid, NL)

May 09

A set of lectures on the physics and properties of elastomer-based systems; both from an academic and industrial perspective:

14 Challenges and Opportunities of Elastomer-based Systems

Prof.dr. Anke Blume (UT, NL)

15 Thermoplastic Elastomers based on Styrenic Block Copolymers

Dr. Luigi Balzano (Kraton, NL)

May 16

Two lectures on functional and responsive polymer systems. Highlighting the exciting and developing field of polymers used for actuation and sensing.

16 Polymer Materials for Soft Robotics

Dr. Danqing Liu (TU/e, NL)

17 (Responsive) Polymers in Microfluidics

Prof.dr.ir. Jaap den Toonder (TU/e, NL)

Tbd

Exam RPK-C 06 June 2025 1 - 4 pm in Utrecht

Re-sit exam RPK-C 29 Aug 2025 1 - 4 pm in Utrecht

**Details of the programme are subject to change.
All lectures will be given in English.**

**All lectures will be held at Beatrix - Jaarbeurs in Utrecht,
starting at 10.15 am, ending at 5.00 pm**