

# Plastics | SA

## Online Plastic Part Design Programme

Presenter: Peter Cracknell

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### Course Outline

**Dates:** 21, 22, 23, 28, 29 & 30 June 2022

- 3 sessions per morning for 6 days:
- Session 1 from 09:00-10:00,
- Session 2 from 10:30-11:30,
- Session 3 from 12:00-13:00,

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### Module Schedule

Session 1 – Introduction to Plastic Materials, nature & properties explained from a design perspective.

Session 2 – Nature of Polymer Flow, flow properties, shear effect & pressure drop calculations covered.

Session 3 – Polymer Thermal Characteristics, thermal properties, shrinkage, carbon footprint & stressing.

Session 4 – Polymer Design Requirement Spec, inc, mechanical, thermal, chemical, aesthetic properties covered.

Session 5 – Injection Moulded Part Design 1, inc, process theory, mould designs for different applications and machine layouts.

Session 6 – Injection Moulded Part Design 2, inc, gate selection, point of balance, drafting, wall thickness, etc , covered.

Session 7 – Injection Moulded Part Design 3, inc, good and bad injection moulded product design practices explained.

Session 8 – Injection Moulded Part Defects, explanation of product design, mould design, processing and polymer related defects explained.

Session 9 – Blow Moulding & Product Design, inc, BM processes & product design requirements.

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Session 10 – Extrusion 1, inc, Process Overview, products, production lines, polymers and technology explained.

Session 11 – Extrusion 2 - Profile Design, inc, product design criteria, profile types and additive /property modification additives explained.

Session 12 – Vacuum Forming Overview, inc, basic process and processing techniques explained.

Session 13 – Vacuum Forming – Product Design & mould tool design requirements explained.

Session 14 – Cellular Plastics – Foam processing techniques and the properties of components explained, inc, gas injection techniques and applications.

Session 15 – Polymer Decoration & joining techniques, inc, colouring, metalization, foiling, painting, adhesives and polymer welding techniques explained.

Session 16 – Design Project Management, inc, feedback loops, tier project management, use of FEA, information gathering, testing, etc, explained.

Session 17 – Polymer Product Prototyping methods, inc, free form techniques, printing, SLA, SLS, low cost tooling, etc, explained

Session 18 – New Part First Off Inspection, Fault Identification, Appraisal, modification, inspection methodology explained.

  
