

Dr. Patrick Gregor Wlodarski (BEng)

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Design engineer with extensive experience in plastic part and tool design for injection moulding. Designed products for the medical, automotive and many other industries, ensuring that they can be produced efficiently to the required quality specifications.

Design Projects

- Advised a company on the design of a new product and the material selection for injection moulding. The customer had no experience in injection moulding and was able to move forward with the product based on the recommendations.
- Undertook a team project to design a novel plastic water valve, resulting in a patent application from the collaborative industrial partner. Provided input to ensure that the product can be produced efficiently with injection moulding.
- Designed microfluidic devices for medical applications from the concept stage through to detailed technical drawings. Produced these devices with injection moulding to the required specifications.
- Managing a research project to injection mould plastic microneedles for medical applications. Designed the mould, including the assessment of different mould making materials and fabrication techniques. Successfully produced first sample products.
- Solved an injection moulding fault through recommendations on the redesign of the product and mould for a multinational automotive supplier. The part is now being manufactured to the required specifications.
- Designed a plastic enclosure for the raspberry pi microcomputer which could be produced with injection moulding.
- Designed a complex multifunctional prototype mould. Collaborated with the mould maker and commissioned the mould successfully.
- Provided advice on the design of a novel insect trapping device, so that the product could be produced with injection moulding.

Experience & Education

Swansea University (ASTUTE), UK, Project Officer

09/2012 – present

- Undertook extensive testing of plastic components according to ISO standards and produced an in depth analysis of the data recorded.
- Delivered a seminar series and practical training dealing with the interactions between product design, mould design and process parameter setup in injection moulding.

- Project management of multiple projects to strict deadlines and presentation of project results to industrial collaborators. Furthermore, preparation of technical reports.

Swansea University, UK, Ph.D. in Engineering

10/2009 – 04/2014

Title: Temperature Cycle Injection Moulding of Micro Channels

- Examined cosmetic appearance, weld lines, and the replication of micro features on injection moulded parts in a range of different materials.
- Publication: Wlodarski, P.G., et al., "Quantified Surface Improvement Using Temperature Cycle Injection Moulding", *International Polymer Processing*, Volume 26, Issue 3, July 2011

**University of Applied Science Aachen, Germany,
Bachelor of Engineering**

03/2007 – 08/2009

Skills

- Quality Management Certificate: "Quality Representative" (ISO 9001), TÜV Rheinland
- Inventor and Solidworks (CAD), Moldflow and Moldex (FEM)
- Design For Manufacturing, SPC, DOE and FMEA.
- Very good analytical and mathematical skills
- Good project management skills
- Understanding of Lean Manufacturing
- Very experienced in MS Word, Powerpoint and Excel
- Fluent in English, German, and Polish