Lecture videos

Pre-recorded lecture videos for this course will be uploaded to http://www.maths.ox.ac.uk/ lecture-capture (you'll need to sign in with your Oxford SSO, navigate to 2020/2021 -> Part C/OMMS -> Michaelmas Term -> C5.6 Applied Complex Variables). The lectures involve live writing on a tablet, so are probably best viewed at slightly accelerated speed.

The lectures and the printed notes complement each either - neither is intended as a substitute for the other. The printed notes generally contain more details, and the lectures may include a few extra examples.

The printed notes may be updated during the term - please check back for the most up-todate version.

- Lecture 1 Review core complex analysis (Chapter 1)
- Lecture 2 Review multifunctions and contour integrals
- Lecture 3 Review conformal mapping and applications
- Lecture 4 Schwarz-Christoffel mapping (Chapter 2)
- Lecture 5 Applications of conformal mapping to fluid flow
- Lecture 6 Steady inviscid free surface flows (Chapter 3)
- Lecture 7 More steady inviscid free surface flows
- Lecture 8 Porous media flow with a free boundary
- Lecture 9 Plemelj formulae (Chapter 4)
- Lecture 10 Applications of Plemelj formulae
- Lecture 11 More applications of Plemelj formulae & Riemann-Hilbert problems
- Lecture 12 Complex Fourier transforms (Chapter 5)
- Lecture 13 Applications of complex transforms
- Lecture 14 Wiener-Hopf method (Chapter 6)
- Lecture 15 Application of Wiener-Hopf method to an integral equation
- Lecture 16 Application of Wiener-Hopf method to a mixed boundary value problem

Problem sheets / classes

There are 4 problem sheets - each should correspond to 4 lectures. The classes are in even weeks. I will post hand-written solutions to the problem sheets at a later date.

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