Programme

ESMRMB – Lectures on Magnetic Resonance
"RF coils: Design, build and characterise your own"
King's College London - September 22-25, 2026

King's College London,
St.Thomas Hospital,

Course Chairs:
Özlem Ipek (King's College London)
Andrew Webb (University of Leiden)

Local Organizers:
Özlem Ipek (King's College London)
Marty Rajaratnam (King's College London)

Lecturers:
Angelo Galante (University of L'Aquila)

Ali Caglar Özen (University of Freiburg)

Irena Zivkovic (Technical University Eindhoven)

Jeremie Clement (Siemens Healthineers)

Tuesday September 22nd	Topic/Item (Room)	Teachers
08:30 – 08:45	Registration- large meeting room	
08:45– 09:00	Welcome and Opening	Özlem Ipek Andrew Webb
09:00 – 09:45	L1: Overview of the MR Scanner	Özlem Ipek
09:55 – 11:00	L2: Basic circuits and RF surface coils	Andrew Webb
11:00 – 11:30	Coffee break	
11:30 – 12:15	L3: Tuning, Matching	Angelo Galante
12:15 – 13:00	L4: Baluns, shielding, traps	Ali Caglar Özen
13:00 – 14:00	Lunch	
14:00– 15:00	L5: Practical testing of RF coils	Irena Zivkovic
15:00 – 16:15	PE1: setup and VNA beginner	All Faculty
16:15 – 16:30	Coffee break	
16:30 – 18:00	PE1: Surface RF coil construction, trouble-shooting and testing	All Faculty
18:00 – 18:30	PE1: Exercises, wrap-up and discussion	All Faculty
18:30	Welcome Reception	Faculty and Students

Wednesday September 23th	Topic/Item (Room)	Teachers
08:00-09:00	Revision of the previous practical lab	
09:00 – 10:00	L6: Volume RF Coils	Angelo Galante
10:00 – 11:00	PE2: Volume birdcage RF coil construction, trouble-shooting and testing	All Faculty
11:00– 11:15	Coffee break	
11:15– 13:00	PE2: Volume birdcage RF coil construction, trouble-shooting and testing	All Faculty
13:00 – 13:45	Lunch	
13:45– 14:45	L7: Multiple-tuned RF coils (surface/volume)	Andrew Webb
14:45 - 16:15	PE3: Double-tuned RF coil construction, trouble-shooting and testing (surface)	All Faculty
16:15 – 16:30	Coffee break	
16:30 - 18:15	PE3: Double-tuned RF coil construction, trouble-shooting and testing	All Faculty
18:15 – 18:30	Best coil showcase	All Faculty
20:00	Dinner	Faculty and Students

Thursday September 24th	Topic/Item (Room)	Teachers
08:00-09:00	Revision of the previous practical lab	
09:00 – 10:00	L8: TX/RX RF coils and Phased-arrays	Irena Zivkovic
10:00 – 11:00	PE4: Phased array coils construction, trouble-shooting and testing	All Faculty
11:00 – 11:15	Coffee break	
11:15-13:15	PE4: Phased array coils construction, trouble-shooting and testing	All Faculty
13:15 – 14:00	Lunch	
14:00-15:15	L9a: RF safety	Özlem Ipek
15:15-15:30	L9b: Validation methods	Jeremie Clement
16:30 – 16:45	Coffee break	
16:45-18:30	Showcase & Lab visit	

Friday September 25th	Topic/Item (Room)	Teachers
08:00-09:00	Revision of the previous practical lab	
09:00 – 10:00	L10: TX/RX Switches, preamplifiers	Ali Caglar Özen
10:00-11:00	PE6: Characterisation of a preamplifier circuit	All faculty
11:00 – 11:15	Coffee break	
11:15 – 13:30	PE7: Characterization of low-field and ultra-high field coils	All faculty
13:30-13:45	Course Questionnaires	Students
13:45	Adjournment	

Faculty	Affiliations	Mail
Özlem Ipek	King's College London	Ozlem.ipek@kcl.ac.uk
Ali Caglar Özen	University Clinic, Freiburg	ali.oezen@uniklinik-freiburg.de
Angelo Galante	University of L'Aquila	angelo.galante@univaq.it
Andrew Webb	University of Leiden	a.webb@lumc.nl
Irena Zivkovic	Technical University Eindhoven	i.zivkovic@tue.nl
Jeremie Clement	Siemens Healthineers	jeremie.clement@siemens-healthineers.com

Suggested Reading Books

C. Chen & D. I. Hoult
"Biomedical Magnetic Resonance Technology"
Taylor & Francis, 1989
ISBN-0852741189

J. Thomas Vaughan, John R. Griffiths (Editors)
"RF Coils for MRI"
Wiley, 2012
ISBN: 978-0-470-77076-4

J. Mispelter, M. Lupu, and A. Briguet
"NMR Probeheads for Biophysical and Biomedical Experiments. Theoretical Principles and Practical Guidelines"
2nd edition, Imperial College Press, 2015
ISBN-10: 1848166621

A. G. Webb (Editor)
"Magnetic Resonance Technology: Hardware and System Component Design"
1th edition, Royal Society of Chemistry Press, 2016
Print ISBN: 978-1-78262-359-5