

Programme

**ESMRMB – Lectures on Magnetic Resonance
“RF coils: Design, build and characterise your own”
King’s College London - September 16-19, 2025**

**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)

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<u>Tuesday</u> <u>September 16th</u>	<u>Topic/Item (Room)</u>	Teachers
08:30 - 08:45	Registration	
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: Surface RF coil construction, trouble-shooting and testing	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

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<u>Wednesday</u> <u>September 17th</u>	<u>Topic/Item (Room)</u>	<u>Teachers</u>
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	All Faculty
16:15 - 16:30	Coffee break	
16:30 - 18:00	PE3: Double-tuned RF coil construction, trouble-shooting and testing	All Faculty
18:00 - 18:30	PE3: Exercises, wrap-up and discussion	All Faculty
20:00	Dinner	Faculty and Students

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<u>Thursday</u> <u>September 18th</u>	<u>Topic/Item (Room)</u>	<u>Teachers</u>
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	
14:00-15:00	L9: RF safety	Özlem Ipek
15:00-16:30	PE5:SAR simulations	All Faculty
16:30 - 16:45	Coffee break	
16:45 - 18:30	PE5: Exercises, wrap-up and discussion	All Faculty

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<u>Friday</u> <u>September 19th</u>	<u>Topic/Item (Room)</u>	<u>Teachers</u>
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	

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	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

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