The aim of this course is to offer an in-depth knowledge of current MR imaging techniques for the diagnosis of head and neck lesions. The course will provide the participant with an update on fundamental and advanced sequence protocols to image the different head and neck regions. A comprehensive coverage of the MR signal of the normal tissues will give the preliminary basis for head and neck anatomy. We will focus on imaging strategies, recent developments and specific MR findings to characterize head and neck congenital, inflammatory, benign and malignant diseases. Special emphasis will be placed on differential diagnosis and on grading tumor extent. The course will provide a combination of lectures and case-based interactive teaching in small groups. We are happy to welcome you to this course in Brescia, Italy, where a team of European experts in the field will ensure an excellent teaching programme.

Participation Requirements: Physicians who have attended the School of MRI Applied MR Techniques courses or have good knowledge from other sources; minimum of 6 months experience in applied MRI.
Learning objectives

Basic and advanced MR imaging techniques
- Isotrop (3D) T2-weighted imaging in the temporal bone
- High-resolution T1-weighted images: SE, TSE and GE
- T2 and T1 fat-sat sequences
- Imaging arteries and veins. Black-blood, TOF, PC, CE-MR
- Diffusion weighted imaging
- DCE-MR: which use in the head and neck?

MR signal of normal and abnormal tissues
- Normal and abnormal fat on different sequences
- The signal intensity of water, CSF, mucus, saliva, and «cysts»
- The cortical and cancellous bone. Erosion, sclerosis, invasion
- The normal mucosa. Edema and scar
- Normal findings of cranial nerves, arteries, veins, and dural sinuses

MR imaging of the sinonasal tract and the skull base
- MR anatomy of the anterior skull base floor, orbit, pterygopalatine fossa, cavernous sinus and Meckel’s cave
- MR examination of the sinonasal tract and anterior skull base

MR imaging of the nasopharynx and parapharyngeal space
- MR anatomy of the nasopharyngeal walls and parapharyngeal space
- How to study the nasopharynx and parapharyngeal space lesions
- Differential diagnosis of submucosal masses. MR patterns of pre- and post-styloid masses. Staging nasopharyngeal neoplasms

MR imaging of the oropharynx and oral cavity
- MR anatomy of key oral cavity structures
- MR strategies to image flaps and post-treatment changes
- Role of DCE-MR and DWI imaging
- Role of MR in detecting mandible invasion. Perineural spread and bone invasion

MR imaging of major and minor salivary glands
- MR anatomy of key landmarks
- Fat sat sequences, DCE-MR and DWI imaging. MR Sialography
- Distinguishing parapharyngeal from parotid gland «deep lobe» tumors

MR imaging of the larynx, hypopharynx and lymph nodes
- MR appearance of cartilages. Retrolateropharyngeal and parotid nodes
- Fast sequences. DCE-MR and DWI MR imaging
- Cartilage invasion and transglottic extent. Role of DCE-MR and DWI in detecting nodal metastasis

MR imaging of thyroid and parathyroid lesions
- MR anatomy of key structures. Landmarks for detecting parathyroid glands
- Strategies to increase S/N ratio maintaining sufficient spatial resolution in thyroid/parathyroid imaging
- Grading tracheal wall invasion. MR strategies to detect parathyroid adenomas

MR imaging of temporal bone and CPA lesions
- MR anatomy of VII and VIII cranial nerves. The normal membranous labyrinth. Landmarks for the jugular foramen
- Imaging temporal bone and CPA lesions. 3D T2 sequences. DWI imaging
- Inner ear malformations: is cochlear implant feasible? Neuro-vascular conflict. Detecting the recurrent cholesteatoma

MR imaging of TMJ and masticator space lesions
- MR anatomy of the TMJ
- How to study the TMJ. Strategies for assessing dynamic properties
- TMJ disorder: disk/bone changes. Differential diagnosis of masticator space masses