

Questionnaire

Training Organisation	Ecole Nationale des Travaux Publics de l'Etat (ENTPE)
Country	France
First Name	Denis
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Courses offered

Programme ¹	Course	Semester	Type ²	Hrs ³	CP ⁴	Syllabus
M-CE	Tunnelling	5	C	30	2.5	Construction techniques (conventional methode, TBM for rock, TBM for soft soil,...) Design (temporary support and lining, face stability, settlements prediction, interaction with neighbouring infrastructures,...) Monitoring,...
MAS	Basics/Fo undations	1	C	67	6	Engineering geology, soil mechanics, rock mechanics, material and structures, introduction to numerical modelling
	General project approach	1	C	59	6	Overview of underground structures, General context and key players, from design to construction, Beyond the conventionnal scheme
	Constructi on techniques	1	C	78	7	Site investigation and monitoring, Tunnels: excavation and support, protection and lining, ground improvement, Ancillary and other structures, Conferences on special techniques
	Equipment and safety	1	C	34	3	The broad principles of safety, basic principles of operation

¹ B-CE Bachelor programme in Civil Engineering
 M-CE Master programme in Civil Engineering
 B-ME Bachelor programme in Mining Engineering
 M-ME Master programme in Mining Engineering
 MAS Master of advanced studies

² C: compulsory
 E: elective

³ Number of teaching hours/week for lectures and exercises

⁴ Number of ECTS credit points (1 credit point = 30 hours student workload incl. homework)

ITA-CET
Committee on Education and Training
Activity Group 3: „University network“

	during the operational phase					and safety for road tunnels, for railways tunnels, specific additional works relating to installations, special lectures
	Tunnel asset management	1	C	27	2.5	Principles of maintenance, Knowledge of the structure and ascertaining of the state, monitoring, instrumentation and investigations, maintenance during the life of the structure, Special lectures
	Project	1	C	194	14	On an existing tunnel project, groups of 4 to 5 students are asked to propose alternative solutions and to design precisely some of the specific works such as a tunnel section, a underground station...
	Work placement	2	C	5 months	30	During their internship, students must prepare and submit a professional thesis on a topic related to underground works

Remarks:

Since 2011, ENTPE and INSA de LYON are offering a post-graduate program called "Tunnels and Underground Structures: from design to operation". This program is accredited as a specialised post graduate master's degree by the french "Conférence des Grandes Ecoles". The Master's classes are held in two 5-month sessions: from October to March (Theory classes and group project: 340h+150h), from March to August (internship in a company). The two coordinators of this program are Denis Branque (ENTPE) and Richard Kastner (INSA de Lyon)