



First comments to curricular development of RAILVET

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Summary



1. Foreword

- 2. ECVET in Spain: a short approach
 - 2.1. Railway Operations training in Vocational Education in Spain.
 - 2.2. Actions already done.
- 3. Overview of the general fields of knowledge
- 4. Module composing & ordering
- 5. Conclusions and remarks

1. Foreword

- The Project *Rail Operations in ECVET* (RAILVET), supported by the European Commission, aims to revise the frame training modules of “operation” job family in line with new technologies and adapting it to the European Credit Transfer System (ECVET).
- The overall goal is to achieve common standards for railway training in the operation job family among project’s partner countries as well as in Europe in a broader context.
- The basic contents of the “Operation” module are those developed in 2005-2007 during the execution of DEPRASST Project, which developed a modular-based frame educational programme in railway systems and technologies. It was based on the fourth level of European Qualifications Network (EQF).
- As a core part of the RAILVET Project, the first draft of the “Operation” modules was jointly completed by the railway experts of ETOGM and TCDD in May 2011, for assessment by the project partners and external experts.
- The aim of the present document is to give a vision of how ECVET’s proposals are being developed in Spain, how railway operations will be managed in Vocational Education curricula, and some insights over the draft proposal of the revised training programme.

2. ECVET in Spain: a short approach

- **Created by the EU in 2008**
- **INCUAL (Spanish Institute of Qualifications)** is the institution in charge to develop the ECVET transfer credit system in Spain.
- A Royal Decree issued by the Spanish Government shall implement the system.
- The European Center for development of Vocational Education in Spain has contributed with several analysis about the feasibility of credit transfer systems application in Spain:
- The ECVET Recommendation (18/06/2009) states a working proposal for the Member States.
- Starting of ECVET requires in practice a narrower cooperation between national and international frameworks, concerned about Vocational Education
- To achieve ECVET goals, the implication, creativity and wishful of many different interveners shall be required.

2.1. Railway Operations training in Vocational Education in Spain

Railway operations is not developed as a curriculum in Vocational Education.

The Spanish Rail Act (39/2003) and its developments, states the qualification and training requirements for operation officers in the matters related with traffic control and security management.

That qualification can only be obtained in a normalised school, agreed by the Ministry of Transport. The “Traffic control operator” title is awarded to the trainees after the process, including physical & psycho technical tests. The same happens with train drivers.

All the knowledge not related to the “security-traffic control” concept is not yet determined by a regulatory body.

Till now, only some curricular developments in the field of **maintenance and construction** have been established.

2.2. Actions already done in railway Vocational Education.

- The **IRCUAL** (Regional Qualifications Institute of Madrid) developed during 2011 a study about qualification needs in the Railway sector. The conclusions conducted to 5 professional profiles:
 - Traffic control & Operations – Infrastructure maintenance – Rolling stock maintenance – Commercial Operation of Railways – Driving.
 - In **Barcelona**, there are 2 experiences to retain:
 - IES Illa d'els Banyols: VE Superior Degree in Transport (not continued)
 - FGC & The Foundation of Catalonia Railways : task force of representatives of Rail industry with the aim of define the basic curriculum in railway vocational education. This lead to 4 profiles:
 - Infrastructure maintenance (except civil works) – Electric traction (both fixed and mobile installations) – Railway Telecommunications and Low Voltage – Rolling Stock construction and maintenance.
 - Driving has not been considered, just because there is already a proper qualification system for train drivers issued by the legal rail regulations.
 - In **Andalusia** Region, where important developments on rolling stock are taking place, the regional VE authorities have established a VE Medium Degree in Railway Maintenance.
 - University Master Degrees in Railway Systems: Universities of Comillas (Madrid), Politècnica de Catalunya, and Valencia.
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3. Overview of the general fields of knowledge: Operation



The
comparison to
the “road
driver” ...

- Talking about “operation” of transport vehicles, doesn’t matter the mode (planes, boats, trains or cars...) there are three fields of knowledge:
 - How vehicles operate ? – The technical approach
 - Where every car is going ? – The route plan
 - What rules to follow on the road? – The common regulations



Technical knowledge

- Train dynamics
- Traffic control systems & regulations



Commercial knowledge

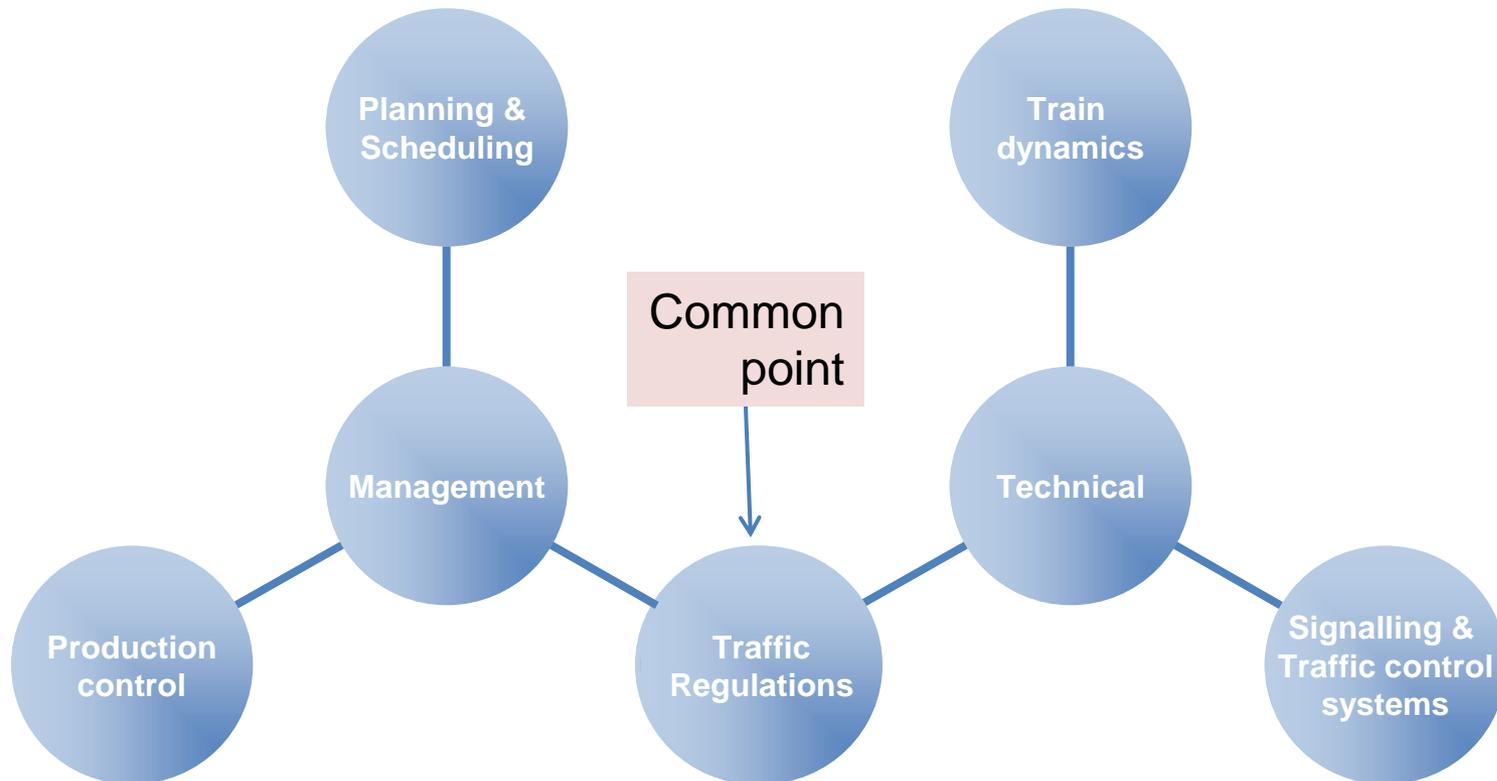
- Transport geography, passenger & freight transport
- Pricing, costing



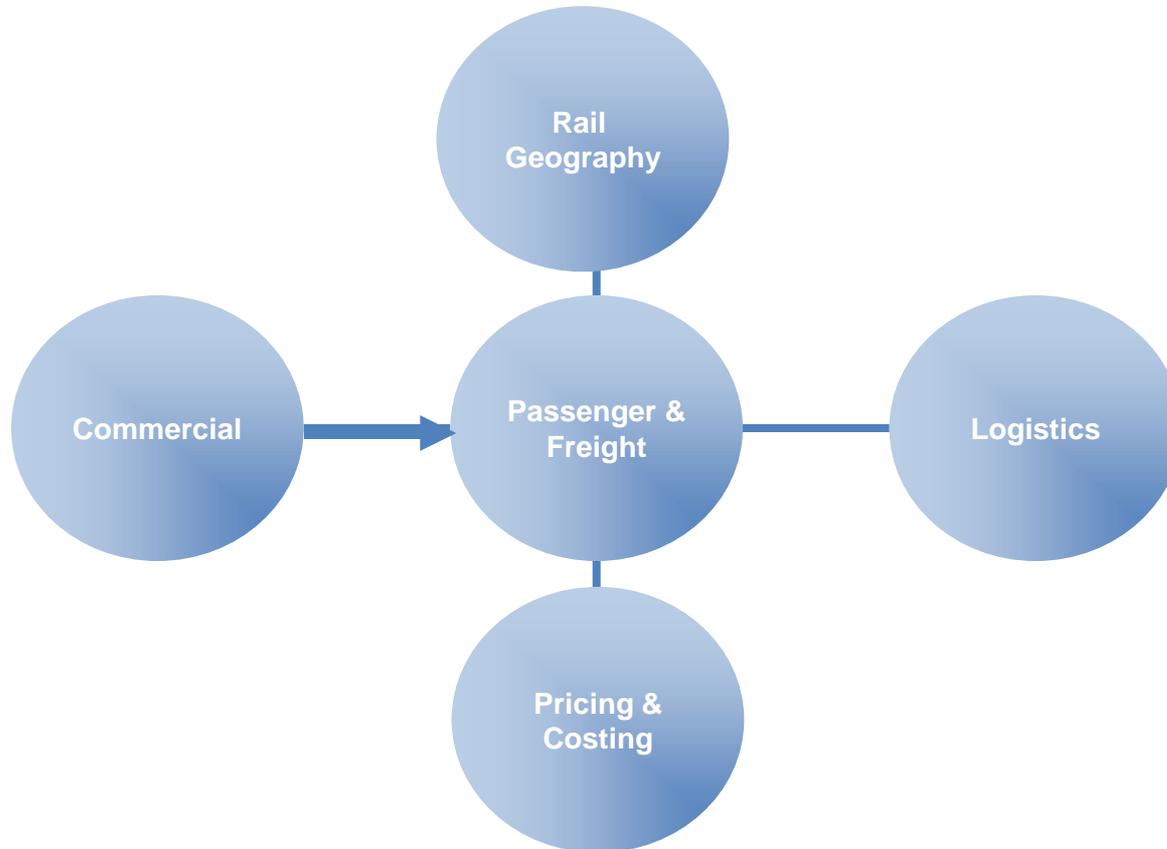
Legal & Administrative knowledge

- EU regulations
- Logistics, contracts, responsibilities, safety

Technical knowledge



Commercial knowledge



Legal & Administrative knowledge



4. Module composing & ordering



Comparison with Draft assignment: MODULES 1 & 2

Sub Modules of Railvet VE programme	Field of knowledge
1.1: Preparation of operational planning	Management - planning
1.2: Operational performance requirements	Management - control
1.3. Operational performance calculations	Management - planning & control
2.1. Forming and monitoring trainsets	Management - planning
2.2. Shunting	Management - planning
2.3. Checking trains	Technical - regulations

Sub Modules of Railvet VE programme	Field of knowledge
3.1: Proper and effective use of traffic management systems	Technical – traffic regulations
3.2: Operating local command tables and boards	Technical – traffic control systems
3.3: Setting switches	Technical – traffic control systems
4.1. Using audio visual signs	Technical – traffic control systems
4.2. Management and implementation of operational activities in different modes	Technical – traffic regulations

Sub Modules of Railvet VE programme	Field of knowledge
5.1: Analysis and management of risks	Legal & Administrative - Responsibilities
5.2: Safety and security applications at work	Legal & Administrative - Liabilities
6.1: Logistics	Commercial - Logistics
7.1: EU Legislation for freight transportation	EU regulations
7.2: EU Legislation for railway passenger transportation	EU regulations

Sub Modules of Railvet VE programme	Field of knowledge
8.1: Railway Freight Transportation	Administrative - Contracts
8.2: Railway passenger transportation	Administrative - Contracts
8.3: Railway transportation of hazardous goods/ freight	Administrative & Legal / Technical
8.4: Irregularities in freight transportation	Administrative – Insurance & liabilities

Some lacking aspects ...



- **Train Dynamics:** essential to understand the interaction between vehicles and track, signalling and protection systems.
- **Railway geography:** A very useful tool to understand the concept of “network”, and why railways are as they are.
- **Pricing & Costing:** Determining the economical aspects of railway operation and having a base to budget activities. Principles of fare composing.
- **Ratios & Indicators:** Fundamental aspects of activity control and measurement, in order to achieve continuous improving.

A possible re-ordering of modules by fields of knowledge

Original proposal

1. Planning Operation
2. Train preparation and shunting
3. Railway traffic management
4. Operational modes
5. Safety & Security management
6. Logistics & Storage management
7. EU Legislation for Railways
8. Railway Transportation

Modified proposal

A. Train Dynamics

1. Planning Operation
2. Train preparation and shunting
- 3+4. Railway traffic management & operational modes

B. Rail geography and commercial issues

- 6 + 8. Railway Transportation & Logistics
7. EU Legislation for Railways
5. Safety & Security Management

Conclusions and remarks



- A curricular development of 920 h should be sufficient to implement all the needed knowledge to the training of a railway operations officer.
 - The proposed draft index of contents proposed by the ETOGM experts can achieve a high degree of consensus, as it concentrates much of the knowledge generally required for that professional profiles.
 - Some lacking aspects, discussed in the present paper, could improve the polyvalence of the curricula.
 - The next phase of the assessment will get the detailed analysis of time assignment to each sub units and its contents.
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