

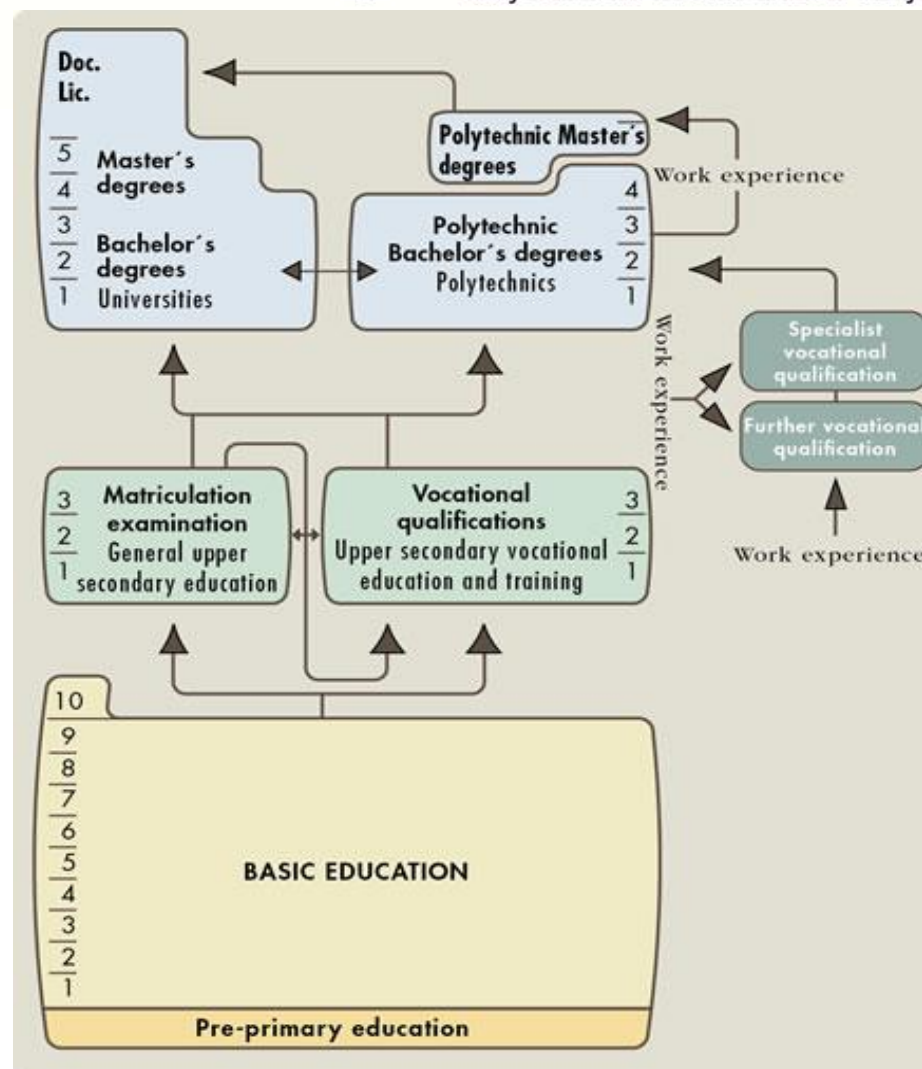


Cargo securing and driver training in Finland

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Overview of the educational system in Finland

- Compulsory education begins at the age of seven. After nine years basic education it is possible to continue either to general upper secondary education or to vocational upper secondary education and training, and then to a polytechnic or university.



Ekami – Number One Place for Learning!

- The College organises vocational basic education and training for 2,380 students in Kotka and Hamina, on the south-eastern coast of Finland.
- Ekami's operation is divided among three units led by the Joint Educational Authority's director/principal Juha Reivilä.
 1. Vocational basic education and training
 2. Vocational adult education
 3. Workshop activity for young people
- Ekami organises vocational basic education and training leading to 24 vocational qualifications, home economics school instruction, vocational start training, education and training coaching immigrants for vocational courses of study, and training and steering education provided as remedial teaching.

Study Programme, Vocational Qualification in Logistics

Competence Area in Transportation Services:

- **Professional driver**
- **Bus driver**
- **Articulated vehicle driver**



Competence Area in Storage Services:

- **Warehouse operative**

Competence Area in Airport Services:

- **Airport attendant***

* Not in Ekami's programme





Study Programme in Ekami's logistics

- THE OBJECTIVES AND ASSESSMENT OF CORE SUBJECTS IN CURRICULUM-BASED VOCATIONAL EDUCATION AND TRAINING 20 cr
- FREE CHOICE MODULES IN CURRICULUM-BASED VOCATIONAL EDUCATION AND TRAINING 10 cr

Articulated Vehicle Driver

- Professional competence in the transport sector, basic level 10 cr
- Management of the transport of goods by lorry 30 cr
- Transport by lorry 20 cr
- Transport of bulk cargo 20 cr
- Entrepreneurship in the industry 10 cr

Warehouse Operative

- Reception and storage of goods 20 cr
- Collection and dispatch of goods 20 cr
- Stocktaking and balance management
- Tasks of a forklift driver 10 cr
- Entrepreneurship in the industry 10 cr
- Handling of dangerous substances 5 cr
- Storage information systems 5 cr
- Transporting goods 10 cr
- Regional features 10 cr

Skill requirements for “Transport of bulk cargo”

The student or candidate is able to:

- plan and choose a route that is appropriate for the transport operation
- load and unload a lorry or articulated vehicle with/carrying bulk cargo in accordance with the regulations and in the manner required for the task
- drive a lorry or articulated vehicle in accordance with the rules and regulations and in the conditions required for the task
- carry out the transport operation assigned to him/her
- use the accessories and equipment needed to load, transport and unload consignments of bulk cargo



More skill requirements:

The student or candidate is able to:

- identify and distinguish different types of bulk cargo and their characteristics
- use telematics applications and load optimizers, as appropriate
- keep his/her work environment clean, tidy and in good order
- take account of factors that affect health, safety and ability to function
- adhere to the principles of internal entrepreneurship and quality system requirements
- function in customer service situations
- take a road safety training course



Learning by doing!



Cause



Effect

Cargo securing in Finland

Legislation for cargo loading and transporting in Finland is based on:

- Road traffic act 267/1982
- Act on the transport of dangerous goods 791/1994
- Decree on the use of vehicles on the road 1257/1992
- Ministry of transport's decree on cargo space, loading and load anchoring 940/1982
- Ministry of transport's decree on oversized transport and vehicles 1715/1992

The biggest differences in legislation compared to other European countries:

- The use of friction coefficient in cargo securing
- Expected acceleration to different directions when calculating cargo securing
- Tension force not defined when securing cargo with lashing straps
- The responsibilities between the driver, loader and consignor
- Maximum length and mass on the road
- The effect of the Union

Examples of maximizing the transport capacity

Semitrailer + central axle
drawback trailer
25.25x2.6x4.2 m (l,w,h) 60 t



Lorry + dolly + semitrailer
25.25x2.6x4.2 m (l,w,h) 60t





Bigger loads – Less emissions!!

B-Trailer / B-Train

25.25x2.6x4.2 m (l,w,h) 60t

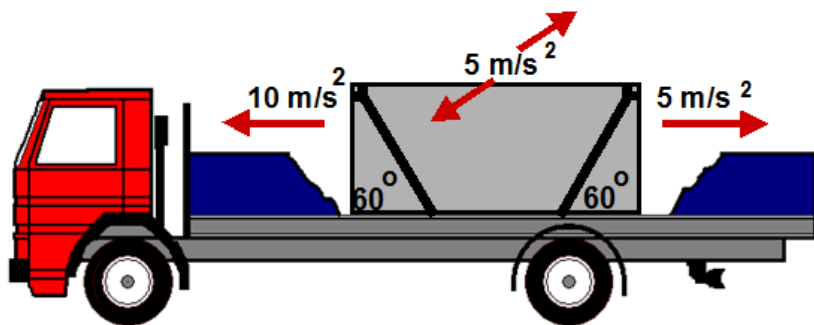
Starting from 1.10.2013 maximum weight is 76 t (38 t + 38 t)

25,25x2,6x4,4 m (l,w,h) 9 axles and payload is 50 t!!!



Cargo securing according to legislation of Finland

The forward movement of the entire cargo weight must be prevented by lashing, blocking, locking, covering or combinations. Only half of the cargo weight needs to be taken into account when preventing sideways or backward movement.



Friction coefficient table

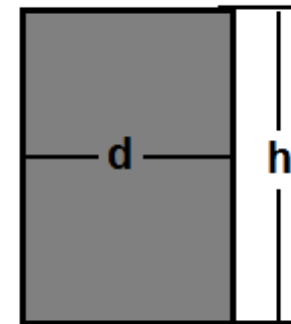
Material combination in the contact area	Friction coefficient		
	Dry & clean	Moisterin & dirty	Snow & ice
Metal - metal	0,3 - 0,5	0,2 - 0,3	0,1 - 0,2
Sawn timber - sawn timber	0,3 - 0,5	0,3 - 0,4	0,2 - 0,3
Sawn timber - metal	0,3 - 0,5	0,3 - 0,4	0,1 - 0,2
Sawn timber - concrete/stone	0,4 - 0,6	0,4 - 0,5	0,3 - 0,4
Sawn timber - plywood	0,4 - 0,5	0,4 - 0,5	0,3 - 0,4
Metal - concrete/stone	0,3 - 0,4	0,2 - 0,3	0,1 - 0,2
Sawn timber - rubber	0,4 - 0,6	0,3 - 0,4	0,2 - 0,3
Metal - rubber	0,4 - 0,5	0,2 - 0,4	0,1 - 0,2
Paper roll - paper roll	0,5 - 0,65		

The transportation of paper rolls in Finland



Only the tipping of the cargo must be prevented if the cargo is loaded against the front wall.

$$h = 2 \times d$$





Other Finnish specialities

- The person who gives instructions on cargo loading is also responsible for the cargo...
- Consignor is responsible for all the information related to goods...
- The driver is responsible for all the vehicle information to ensure proper loading.
- The driver is responsible for the load securing during the entire drive although tension force is not defined when securing cargo with lashing straps (not TIR)
- The driver is responsible for the all equipment needed in cargo securing and that the vehicle is suitable for traffic and the task.
- Employer must ensure that all the employees are familiar with loading rules and legislation.
- Employer must ensure that all the employees have a written permit and proper training to use forklift trucks and other machinery.
- During the drive it is possible to take on extra passengers in load compartment if the driver thinks that the persons seem miserable in some way, provided that the transportation can be done safely. Concerning vans and lorries, not semitrailers (1982) 😊



Statistics on commercial transport provided by Finnish police

