

# Integrating Companies in a Sustainable Apprenticeship System

Project 2017-1-DE02-KA202-004174

**Intellectual Output 3** 

# **Train-the-Trainer Manual**

# **Production planning**

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### 1. Introduction

#### 1.1. Aims of the ICSAS Project

The aims of the Erasmus+ project «Integrating Companies in a Sustainable Apprenticeship System» are to

- induce the existing Vocational Education and Training (VET) systems to train skilled workers for footwear manufacturing in Romania and Portugal to develop towards work-based learning (WBL) and improve the sector-specific tutor training in Spain and Germany
- develop a sector qualification framework and the referencing of national qualifications of Germany, Portugal, Romania, and Spain.

#### 1.2. Eleven Manuals to Guide In-Company Tutors

Within this project, the project consortium has committed to editing eleven manuals which are intended to prepare in-company tutors and provide support for the work-based learning phases of the apprenticeship.

The work-place specific know-how (for example in the cutting department) will be imparted by skilled workers from this department. They will take on the role of in-house workplace instructors/trainers.

- demonstrating the operations which the apprentices are supposed to learn to perform
- guiding and supervising the apprentices during their first approaches as their skills are becoming more and more advanced
- leading them towards an independent performance of the task

Furthermore, each company enrolled in work-based learning will appoint a Head of Training who is responsible for

- planning of the order of the overall training of each apprentice (how long each apprentice will be trained at each learning station and in which order)
- assessing and documenting the learning progress of each student at each learning station

The chapters of this document are not meant to replace a textbook. They are meant to provide support to the trainers to plan the work-based learning activities with the trainees. The workplace trainers are invited to gather more information from other sources.

#### 1.3. Take Your Apprentices on a Guided Tour

Before you start the hands-on training in a specific department, please make sure that the apprentice has been given a tour of the entire company including all departments.

For example, you could start with presenting the types of products your company manufactures and their intended use, the different customer segments, the distribution channels etc. Allow the apprentices insight into the product creation and manufacturing



processes, i.e. product design, pattern making, purchasing department, production planning, and all production departments to warehouse and logistics.

Present some shoe models your company produces (as in Fig. 1). Your trainees will better understand the complexity of the product "shoe.



*Fig. 1: Views of shoe parts like on this photo can be very helpful for the trainee to understand the complexity of a shoe* 

## 2. Production planning

Footwear production planning is about distributing and coordinating all the activities related to footwear manufacturing.

Production planning activities are mainly divided into the following categories:

[https://www.123test.com/professions/profession-footwear-production-manager/] [http://accessinfotechindia.com/product-features/]

- **Product data management** products classification, size, style, variants, design, target market, materials, components, technical specifications, etc.;
- **Order management** inventory, manufacturing, and delivery planning according to deadlines and available resources;
- **Manufacturing planning and monitoring** planning and coordinating all the manufacturing phases and tracking work in progress and consumption.
- Materials and components planning and inventory management- ordering materials and components according to work orders and managing bills and keeping inventory.
- **Delivery and finished products stock management** plan, organise and monitor logistics and supply chain activities.
- **Workforce management** organising workforce accordingly to availability and keeping daily records of work hours and productivity.
- **Financial Management** accountancy system that provides accurate and on time information regarding cash flows, fund flows, recurring expenses, costing and efficiency of manufacturing systems, budgeting and fund allocations.

Depending on the company (size, organisation of departments, distribution of activities etc.) part of the activities related to production planning can be included in other departments.

For increase efficiency, companies use for production planning different software systems. The main software categories are ERP (Enterprise Resource Planning) PDM (Product Data Management) and PLM (Product lifecycle Management).

## 3. Example: Production planning at Papucei

Next, the main features of production planningsoftware used by "Papucei" will be presented. We mention that there are various software solutions available on the market that have similar functionality, therefore we will not make a detailed presentation on how to use this software. We will focus on those modules also found in other programs.

Production planning software main sections:

- 1. Models
- 2. Materials
- 3. Clients
- 4. Orders
- 5. Barcodes

dauga Model			Jrmarire Productie Produse Comano	date Produse Preluate Stoc Produse Expediate	Management Stoc
Denumire Denumire Fabrica	Papucel	Brand Nou		Рар	
	Accesori Beeniv (000.145.100) 0 Pret Ste EURO 0 Pret Frénce EU	Categorie Nou	(Fabroa USD 0	1 – Models 2 – Materials 3 – Clients 4 – Orders 5 – Barcodes	

*Fig. 2: Production planning software main sections* 

#### 3.1. Models

#### a. Define new Model

- name;
- code;
- category/type;
- description;
- variants;
- image.

Cauta Model			
O Dupa nume Papucei	• [	×.	
Oupa nume fabrica	Jose SS19	*	
Name		Code	Description
ose SS19		Jose SS19	
Categor	Categorie	Cutie Pantofi (300,170,100)	
Pret Site Lei Pret	t Site Euro Pret Fab		
	1.00	1.00 59.00 1.0	
1.00			
		1.00 0000 0001	
Variant		Sezon	Image
Variant			
Variant		Sezon	
Variants Bue		Sezon Primavaria/Varia 2019	
Variants variants Blue Grey from april		Sezon Pirnavara/Vara 2019 Pirnavara/Vara 2019	
Variants variants Blue Grey from april		Sezon Pirnavara/Vara 2019 Pirnavara/Vara 2019	

Fig. 3: Defining new model

#### b. Assign Materials

- assign materials and components (type, name, colour, cod, UM, supplier, quantity etc.);
- in the case of "Papucei", materials consumption is received from the technical design department.

	tire:	Denumire fabrica								
Jose S	5519	Jose SS19								
Brand		Categorie								
Papuo	cei y	Pantofi	-							
Variari	ta									
Blue		-								
							Ordonati materialele	<u>ــــــــــــــــــــــــــــــــــــ</u>	<b>v</b>	
	Bement	Denumire	Componenta	Culoare	Cod	UM	Fumizor	Cantit	at ^	Adauga
	Brant	Brant Fero	Alta			buc	-	1		material
•	Acoperis de brant									Modifica
	Talpa	Talpa Ferro Pink	Alta	roz		per	2	1		material
	Calapod	Calapod Ferro	plastic	alb		per	-0	1	-	Elimina
	Cutie	Cutie Balerin Morresi	carton	negru	29*16*10	buc	Morresi	1		material
	Accesorii	Siret Jersey bej, lat=2 cm,	textil	bej		ml	Kompoint	1.8		
	Accesorii	Siret 16150 capsat L0.9ml	textil	negru		per	Aura Sales	1	-	
	Captuseala	Captuseala MM neagra	piele_naturala	negru		mp	Manufactura_Magura	0.08	-	Importa
										necesar

Fig. 4: Assigning model materials

#### c. Bill of Materials

After filling all the models details and assigning materials, the bill of materials can be generated.

ARTICOL: Jose SS19	Bill of Ma			
VARIANTA: Blue		Cuti	e: Pantofi (30	0,170,100
	Element	Denumire/Cod	Consum	UM
	Brant	Brant Fero /	1	buc
	Acoperis de brant	Acoperis b. antracit /	0.05	mp
	Talpa	Talpa Ferro Pink /	1	per
	Calapod	Calapod Ferro /	1	per
	Cutie	Cutie Balerin Morresi / 29*16*10	1	buc
	Accesorii	Siret Jersey bej, lat=2 cm, vopsit la culoare /	1.8	ml
	Accesorii	Siret 16150 capsat L0.9ml N /	1	per
	Captuseala	Captuseala MM neagra /	0.08	mp
Observatii:	Fata	Captuseala antracit fete /	0.2	mp

Fig. 5: Model technical sheet

Also, from the **Models** section is possible to access the existing shoe models, track manufacturing process, and to check ordered, stocked and shipped models.



#### 3.2. Materials

- new materials and components can be added to the system or the details of the existing ones can be changed;
- also, materials can be ordered from this menu.

	Vizualizare Ma		S 🗂 ri Fabricatie Bonuri / Rapoarte	Urmarire Fise Lansare Urmarire	
	Centralizator (	2007			
	Fitre	ienz)			
	Produc	Cleat		Share Enhangle	Stare Comanda
					Toate
م ا ما ان ما ار م	1	onents list			Specifica
ateriais	comp	Dinents list			Anulata
enda culori	•		Nodificare stare Isto	ic stare Fisa de lansare	Confirmata
enda culori			Nodificare stare 15tol	CONTRACTOR OF THE OWNER	Expediata Expediata Patial
Denumire model	A Culoare 3	d	1.1	e te	ti 🔄 Incasata
and the second second second		Adding new materi	al / componer	nt l	Meconfirmata
1003 ciana A Volvet aw17	Silver 0	0	,		Productie
		D		fore	(F) Returnata
A Velvet aw17 A. Barton AW18		Element (F1,F2,)		Element nou	is Standby
	Black 0	Componenta (piele, plastic,)		Componenta noua	
A. Barton AW18					
A. Bond AW18	Black 0 Black-gold 0	Culoare		Culoare noua	
A. Bufalo SS19		Cod			
A Butalo SS19					
A. Bufalo SS19		Unitate de masura	L	nitate de masura noua	
A Bufalo SS19					
A. Bufalo SS19	Black-gold 0 Black-gold 0	Funizor		Furnizor nou	
A. Bufalo SS19				Furnizor nou	Cauta
A. Bufalo SS19	Black-gold 0	Preturi	-		
L'ATT PAR		PretLei PretEuro Canttate	Temen		
				Adauga pret	
#1943	0			Sterge pret	
	Model/Culoare/Marimi				
onta ALS Kaport	modely Culcare/Harimi				Incl
		Observati			

Fig. 6: Materials menu

#### 3.3. Clients

Adding new clients (company name, headquarter address, shipping address, country, telephone, mail, contact person, etc.) and viewing existing ones.

File depa	J X D B	2 CO IL	BALLO	I DE A	GEORGIANA (an	gajat) - Papucei v1.0.1.75 Fabrica 🛛 🔹 🗶
Papucei	PRODUSE	MATERIALE CLIENT	COMENZI MAGAZINE	CODURI DE BARE		
		+ <b>2</b> Adauga Client	Vizualizare Clienti	Urmarire Clienti	Detalii Clienti	
Adauga Client	t i i i i i i i i i i i i i i i i i i i					
Persoana Juridica	externa 👻		Data Inregistrari 10-1	0-2018		
Denumire Fiscala						Papucer
Denumire Magazin						LOOK DELICIOUS
Adresa Sediu						
Adresa Livrare						
	Este aceeasi cu adre	sa sediu				
Tara		VAT				
	Verifica VIES Data	verificare	Valid Inva	slid		
Telefon		Fax	Emai			
Persoana contact		Email p.c.				
Comentari						
				*		
				v		Adauga Inchide

Fig. 7: Clients menu

#### 3.4. Orders

Adding new orders received from clients in to the system and track orders and bills.

	Adouga Comanda Urmarire Facturi
Adding a new or	
Lei  Etaro Uted Primavara/Vara 2012  And de expediere  GLS *	Adding models to order
lod de plata: Rembure	Protos         Exercision         Protos           Protos         58:001         Protos         2012           Protos         58:001         Protos         2012           Protos         58:001         Protos         2012           Protos         2012         Protos         2012
educere aplicata comenzi  🥠 %	Modics pret achiate: 000
Derumie Jose 5519 Bue	Marrise 32:         D         Marrise 33:         D         Marrise 34:         D         Marrise 45:         D           Marrise 34:         D         Marrise 37:         D         Marrise 40:         D         Marrise 40:         D           Marrise 36:         D         Marrise 40:         D         Marrise 40:         D         Marrise 40:         D           Marrise 30:         D         Marrise 41:         D         Marrise 50:         D         Marrise 30:         D         Marrise 41:         D         Marrise 50:         D         Marrise 30:         D         Marrise 41:         D         Marrise 50:         D         Marrise 30:         D         Marrise 41:         D         Marrise 50:         D         Marrise 30:         D         Marrise 41:         D         Marrise 50:         D         D         Marrise 41:         D         Marrise 50:         D
Detali reducere	Reducere splitsta . []] 1:

Fig. 8: Adding a new order

#### 3.5. Barcodes

From this menu, for each order, packaging labels can be generated and printed.

Fie Po Papucei produse materiale clienti	a side the for the	A (angajat) - Papucei v1.0.1.75 Fabrica 🔄 💌 🗙
	Printare Coduri Produse Scanare Produse	
Printing orders barcoc	Lenothe Its Showten Derumie Fabica [1004 Brand Categore	
Verlante depondée - Fragme Rodue - Fragme Rodue	Peconi Pertifi  Pet Pet 163.00 Desofere	Refrect: Form
Eldvels Produ	Vietneta:         □         Ø         Ø           0         3         34         \$9.5         35         37         38           23         0         34         \$9.5         35         37         38           45         0         41         0.42         0.43         0.44           45         5         9         5         9         44           Humar elohete:         1         <	Include

Fig. 9: Printing barcodes



## 4. Assessment/ Feedback template

#### 4.1. Introduction to feedback sheet

Unlike learning in formal environments as in classrooms or workshops, learning outcomes (LO) from work-based learning (WBL) in a learning station (LS) depend strongly on the actual equipment of the production line and the models and makes, which a shoe factory manufactures. If the shoe models produced do not require certain work tasks of a whole sphere (in stitching or assembly, for example), then it is simply not possible to acquire skills in this production line related to this method.

A systematic and transparent communication on concrete LOs acquired via WBL by a learner/apprentice between tutors, supporting the learner in the various departments, and the head of training, being responsible for the entire training programme, is of great importance in WBL.

With the intend to provide a concise and handy communication tool, we recommend using the matrices as shown below: They allow tracking the achievements of each trainee in each department in a quick and easy way. The matrices do not refer to any formal assessment; they simply state the degree of autonomy each trainee was able to reach within the given timeframe in each Sphere of Activity.

The matrices list the main work tasks (in bold) and the performance that can be acquired in each department. The work tasks refer to the acquired skills; to indicate that they include key competencies and knowledge the underlying elements for some of the work task are listed.

How to use the matrices: In order to give feedback on the learning progress of each trainee, please tick off the level of autonomy the learner has reached for each work task (choosing between needs assistance / needs instruction / needs supervision / completely independent).

If the work task in the matrix was not part of the training, you can leave it out or erase the work task; if additional work tasks were trained, please feel free to continue the list of work tasks according to your training goals.

In the end, the matrices will document what each learner has been able to acquire and which level of autonomy she/he has reached. And again, although this has already been said: Please bear in mind that you may have to adapt the matrices according to the processes and to the operations in your department.

Sphere of A	ctivity: Pro	duction pla	anning					
Work task: M	odels							
Defining a new mode	el;							
Defining model varia	nts;							
Modifying an existing model;								
Assigning materials and components to a model;								
Asking for support if	Asking for support if needed.							
Evaluation								
Needs assistance	Needs instruction	Needs supervision	Completely independent					
Place, Date	Signature							
Work task: M	aterials							
Defining a new mate	rial / component;							
Defining a new mate	rial / component;							
Ordering materials;								
Asking for support if	needed.							
Evaluation								
Needs assistance	Needs instruction	Needs supervision	Completely independent					
Place, Date	Signature							



Work task: Cli	ients		
Adding a new client;			
Checking client detail	ls, orders, bills etc.;		
Asking for support if	needed.		
Evaluation			
Needs assistance	Needs instruction	Needs supervision	Completely
			independent
Place, Date	Signature		
Work task: Or	ders		
Adding a new order;			
Tracking order proces	ss;		
Asking for support if	needed.		
Evaluation			
Needs assistance	Needs instruction	Needs supervision	Completely
			independent
Place, Date	Signature		
	-		
Final evaluation (in	n this departmen	t)	
Production planning,	, including all work t	asks above	
Evaluation			
Needs furthe	or training	Can perform all w	ork tasks (almost)
		indepe	ndently
Place, Date	Signature		

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