

**Implementation of the dual system within the TSU career in Design and Industrial fashion, production area****Implementación del sistema dual dentro de la carrera de TSU en Diseño y moda Industrial, área producción**

RAMÍREZ-MONDRAGÓN, Xóchitl\*†, TENORIO-LARA, Raúl and VÁZQUEZ-JUÁREZ, Yolanda

*Universidad Tecnológica del Suroeste de Guanajuato, carretera Valle-Huanímaro Km. 1.2, Valle de Santiago, Gto. México*ID 1<sup>st</sup> Author: *Xóchitl, Ramírez-Mondragón*ID 1<sup>st</sup> Co-author: *Raúl, Tenorio-Lara*ID 2<sup>nd</sup> Co-author: *Yolanda, Vázquez-Juárez*

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**Abstract**

This work shows the learning process in which you work at the same time or at the same time, the learning acquired at the university with the work in the company, that is, the knowledge acquired in your academic stay and the relationship of the different areas. work assigned in the labor field, calling it this way, dual system, it is worth mentioning that the student is assigned an academic advisor (teacher or tutor) by the university and a business advisor assigned by the beneficiary company (manager, manager, coordinator), in this way the student has the attention of both parties, strengthening academic and work learning, it is worth mentioning that the change of area in its periodicity or temporality is assigned by consensus between the business advisor and the academic advisor, so the same way the areas to assign, by means of a work plan where it is established at the beginning of the student's stay in the company.

**Dual system, Apprenticeship, Work environment****Resumen**

Este trabajo muestra el proceso de aprendizaje en el cual se trabaja a la par o al mismo tiempo, el aprendizaje adquirido en la universidad con el trabajo en la empresa, es decir, el conocimiento adquirido en su estancia académica y la relación de las diferentes áreas de trabajo asignadas en el campo laboral, llamándolo de esta forma, sistema dual, cabe mencionar que el alumno tiene asignado un asesor académico (maestro o tutor) por parte de la universidad y un asesor empresarial asignado por parte de la empresa beneficiada (gerente, encargado, coordinador), de esta manera el alumno tiene la atención de ambas partes, fortaleciendo el aprendizaje académico y laboral, cabe mencionar que el cambio de área en su periodicidad o temporalidad es asignado en consenso entre el asesor empresarial y el asesor académico, de la misma forma las áreas a asignar, por medio de un plan de trabajo donde se establece al inicio de la estancia del alumno en la empresa.

**Sistema dual, Aprendizaje, Entorno laboral**

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\* Correspondence to author (e-mail: xoramirez@utsoe.edu.mx)

† Researcher contributing first author.

## Introduction

The Dual Training System is an option that allows students to interact and complement their professional training, through collaborative work that is obtained by combining the skills acquired in their professional training with professional practices; that is, it allows an alternation with the theoretical training of the University with the application and analysis of the same within the industry, thereby strengthening the student's graduate profile.

The Dual Training System provides better conditions for the labor and professional insertion of students, as well as strengthens and develops aptitudes, skills and abilities of the student.

## Methodology to be developed

### Theoretical framework

Starting from the definition of a duality in which two systems are combined to achieve a common goal, the dual system at the educational level has as its main objective to combine work activities with rational thinking based on knowledge acquired in a theoretical way.

The dual system has its principle in a German model, which professionalizes the training between the education acquired by an educational institution and the practical knowledge in the company through the "Berufsschule" system, leaving as benefits of the model the skilled labor for productive systems, which directly impact the economic welfare of societies (Falcón, 2015).

In turn, there are variants to the dual model, the first is one that is responsible for introducing the student in one or more professions officially recognized in the dual system, instructing them in the basic level; The Fachoberschule is another type of vocational school that in different specialties enables, in two years; the Fachschule is another way, but in this case it is an institution of professional development, which is accessed by those who have a vocational training degree and perform a professional activity related to a particular specialty. (Falcón, 2015).

The educational model implemented by the Technological Universities in Mexico by the CGUTYP, considers the acquisition of competencies in a 30% theoretical and 70% practical in its educational offer.

The Technological University of the Southwest of Guanajuato has the TSU careers in Design and Fashion, area: production with a duration of 6 semesters of which 5 are lectures and 1 in business stay; and the continuity in Engineering in Textile Design and Fashion with 5 semesters, 4 lectures and 1 in company giving a total period of 3 years 8 months of the terminal career.

### How is it implemented?

The application of the dual system at the University establishes a period of 6 months in the company for students in the last semester of TSU and Engineering level with the objective of achieving the integration of knowledge and training in the main areas of the company related to their profession. For this purpose, we work with the creation of a learning matrix that seeks to relate the knowledge that students still have to acquire because this system must start 2 months before the student finishes the fifth quarter in TSU or the tenth quarter in Engineering and thus complement the established period.

The system works hand in hand with the business sector related to the profile of the career through collaborative agreements, in which the company is committed to generate 3 areas or learning positions within which the student will rotate every 2 months.

### Results

Once the company is identified where the space for the student to perform the dual system is opened, an analysis of the competency matrix is performed and the training areas in which the students will be incorporated are jointly determined. This analysis results in the identification of the learning positions, activities and rotation plans.

Once the academic advisor and business advisor work together, the apprenticeship positions are obtained. Example.

**Learning Positions**

1. Design
2. Pattern making
3. Cutting
4. Tailoring
5. Quality
6. Maquila

The activities to be carried out for the fulfillment of the competencies to be acquired during their 6-month stay are determined by the learning positions.

Design:	Elaboration of design proposals designs
	Preparation of technical data sheets
	Selection of materials for sample preparation
	Sample garment manufacturing
	Drawing and transformation of parts
Patterning:	Mold graduation
	Use of pattern making, grading and marking software
	Laying
Cutting	Cutting
	Foleo
	Bulk control
	Breakdown of operations
Confection:	Distribution of equipment and machinery
	Time and motion movements
	Bi-hourly blades
	Production process
	Raw material review
Quality:	Finished product review
	Quality review of garments garments according to technical data sheets
	Qualification of cuts for maquila
Maquila:	Garment inspection of garments from maquila
	Maquila audit

**Table 1** Example of Learning Positions and their activities  
*Own Source*

In order to start the Dual System, the rotation plans and temporality of each one of them during the student's stay are established (see Table 2).

Apprenticeship Position	Temporality	Assigned position	Start Date	Completion date
Design	3 months	X		31-december
Pattern	3 months			
Cutting	3 months	X	02-January	31-march
Confection	3 months			
Quality:	3 months	X	02- mar	28-aphil
Maquila	3 months			

**Table 2** Example of Learning Positions assignment  
*Own Source*

Once the learning positions and rotation plans have been identified, the implementation of the dual system begins, for which follow-up is provided by means of weekly reports with Vo.Bo. The person in charge of each area in which the student is placed.

**Conclusions**

The implementation of the dual system within the TSU career in Industrial Design and Fashion Production Area allows the fulfillment of the competencies required for the labor insertion of the students, considering that the rotation plan is applied and followed up.

**Decision making**

- Problem solving
- Team work
- Proactivity
- Raciocinio

Likewise, 50% of the correlation matrices are fulfilled, resulting in the hiring of students who complete their dual system in the last four-month period of Engineering.

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