



Co-funded by the Erasmus+ Programme of the European Union

<http://www.im-future.eu/>

Report on the Furniture and woodworking Industry: an analysis of the survey results of professionals working in the sector

to contribute towards the report – *‘Current competences and qualifications needs’*

Author: Mike Dimond, British Furniture Manufacturers

“IM-FUTURE” has been funded with support from the European Commission. This work reflects the opinion of the authors and the Commission cannot be held responsible for any use of the information contained therein.

The aim of **“IM-FUTURE”** is to develop the content for an International Masters’ Degree in the furniture sector. This document analyses the opinions and thoughts of professionals working in the furniture and woodworking sector in regard to the content of such a degree. It does this by analysing the results of focus group discussions and a survey which asked participants to choose the areas of competence they would like to see in a Masters’ Degree and also at what level – fundamental or advanced.

This document follows a previous report on academic programmes currently existing in the EU and a report listing the outcomes of the main competence areas which formed the basis for the survey.

ALL Responses to IM-FUTURE Survey

	Of 181 respondents						~
Competence	Advanced	%	Fundamental	%	No	%	Advanced or Fundamental
	Number		Number		Number		%
Production engineering – technology, process & maintenance	132	73	45	25	4	2	98
Innovation - Product & process improvement systems	128	71	47	26	6	3	97
Production – scheduling and planning	112	62	61	34	8	4	96
Materials management	99	55	72	40	10	5	95
Quality control	98	54	74	41	9	5	95
Workplace, leadership & personal effectiveness competences	83	46	84	46	14	8	92
Operations & process management	76	42	95	52	10	6	94
International trade	76	42	81	45	24	13	87
Marketing	71	39	86	48	24	13	87
Training needs analysis/manpower/succession planning	64	35	88	49	29	16	84
Logistics, warehouse, distribution & supply chain management	62	34	102	56	17	10	90
Human resources and conflict management	60	33	84	46	37	21	79
Sales	51	28	101	56	29	16	84
Business finance	45	25	102	56	34	19	81
Purchasing	46	25	104	58	31	17	83
Fundamentals only	Yes	%	No	%			
	Number		Number				
Fundamentals of making & finishing	166	92	15	8			
Fundamentals of enabling technology applications	159	88	22	12			
Fundamentals of design and furniture design history	158	87	23	13			
Fundamentals of standards – regulatory and technical	156	86	25	14			
Fundamentals of health/safety/environment laws	153	85	28	15			
Fundamentals of setting up a business	125	69	56	31			

Summary of on-line Survey Results

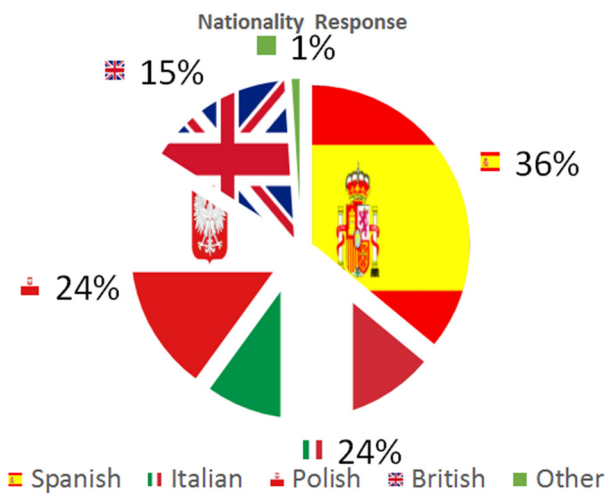
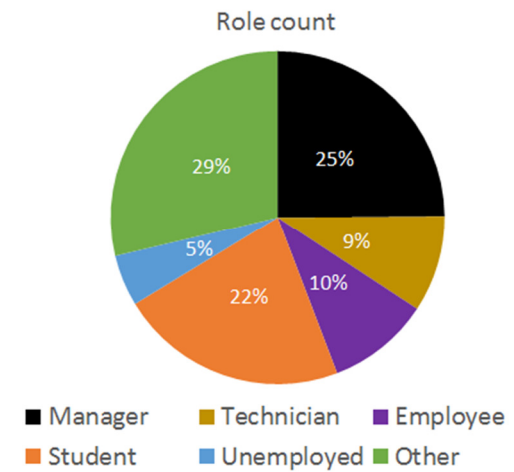
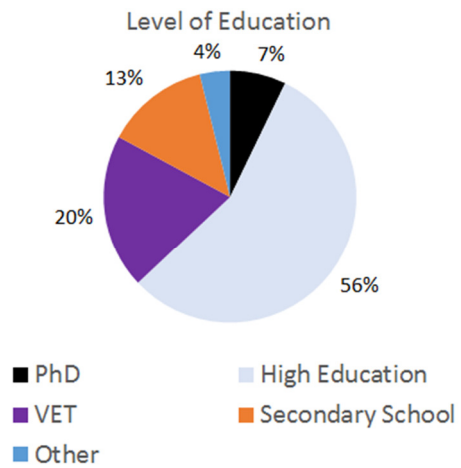
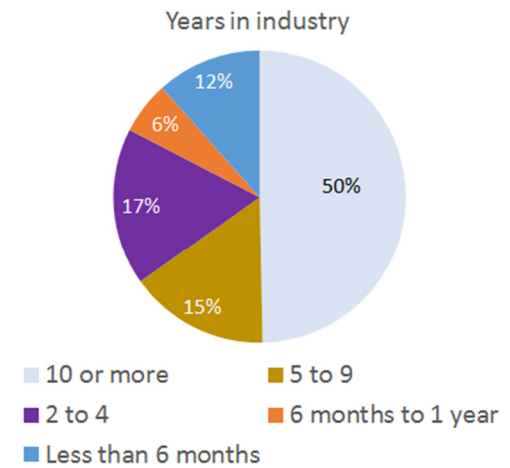
In order to develop the content for an International Masters' Degree, the 4 partner countries of Italy, Poland, Spain and the UK sought the views of those involved in the furniture and wood sector by inviting individuals to complete an on-line survey questionnaire. The sample comprised of different nationalities, roles, education levels, and years involved in the industry. The sample breakdowns for these area are shown below. The crucial question was asked as to whether there was an interest in a Masters' Degree, if available. To compliment the survey, each partner country held focus discussion groups (see below for details).

Only 7% of the 181 individuals sampled stated that they were not interested in such a degree, although a further 20% were unsure. 46% were in no doubt of the value of developing a Masters' Degree, with a further 14% suggesting that it should be as an e-learning mode only. Another 13% stipulated that their interest would depend on whether it was written in their mother language.

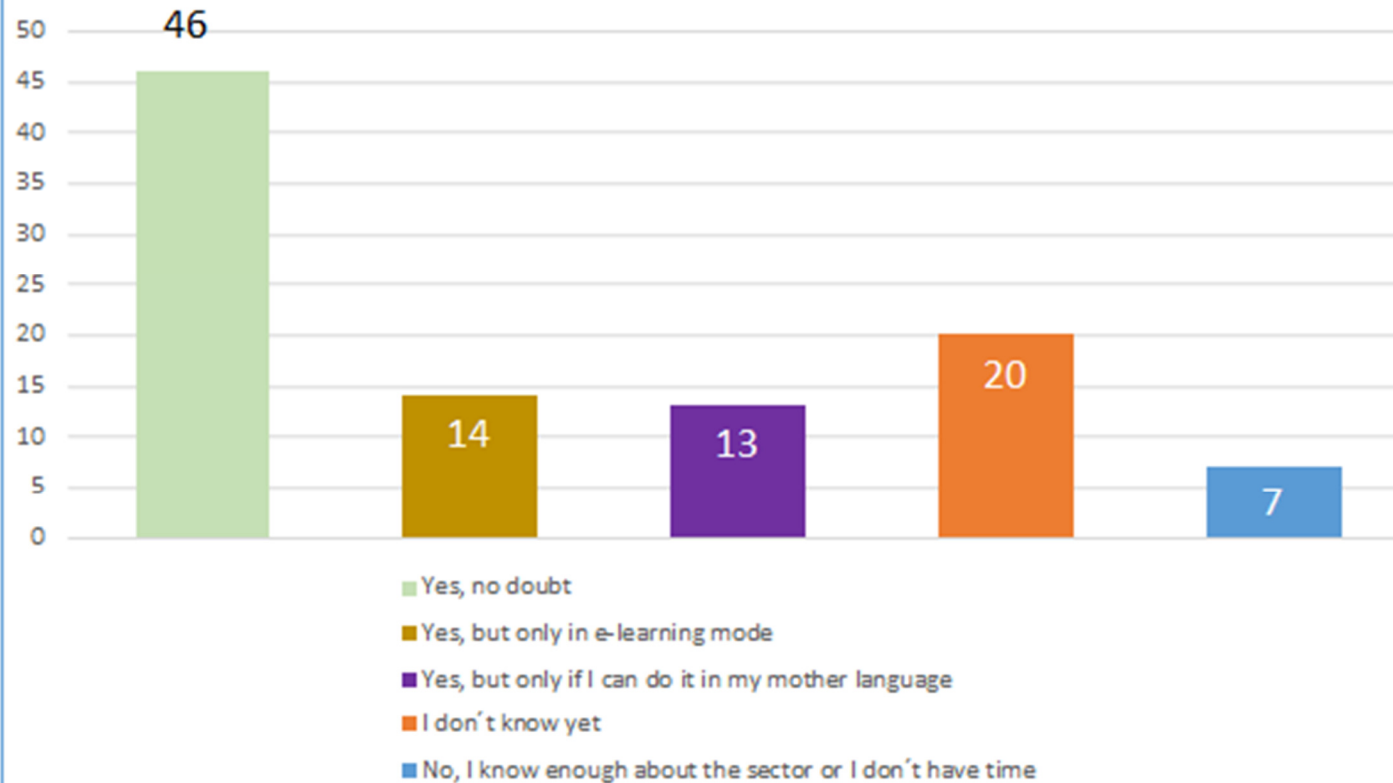
The survey listed 15 areas of competence and participants were asked if the particular area should be covered and if so whether the level should be advanced or fundamental (that is, basic). There were some variations in replies between countries (see pages 12 to 15 of this document) and the results were ranked according to the number of responses at 'Advanced level', from the highest to the lowest. In addition, there were a further 6 questions covering competences at a 'Fundamental Level' only and participants were asked to reply 'yes' or 'no' as to whether they should be included in a Master's Degree.

At the top of the 'Advanced level' came 'Production engineering – technology, process & maintenance' (73%) followed by 'Innovation - Product & process improvement system' (71%) and third was 'Production – scheduling and planning' (62%). In fact, the same 3 areas came top in the same order when the answers to 'Yes - Advanced level' were added to 'Yes – Fundamental level'.

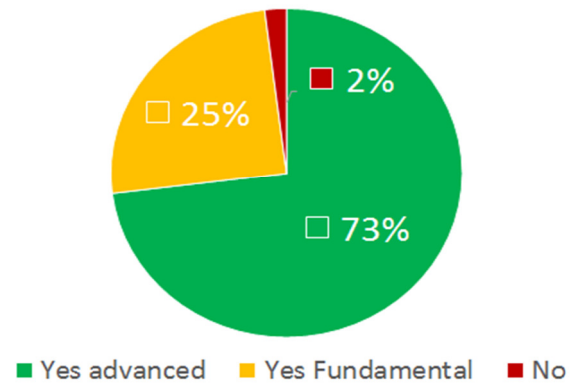
Of the competence areas that were restricted to a question as to whether there should be a fundamental course only, making & finishing (92%), enabling technology applications (88%), design and furniture design history (87%) were ranked at the top but followed closely by regulatory & technical standards (86%) and health, safety and environmental laws (85%). Of lowest interest was the basics of setting up in business (69%).



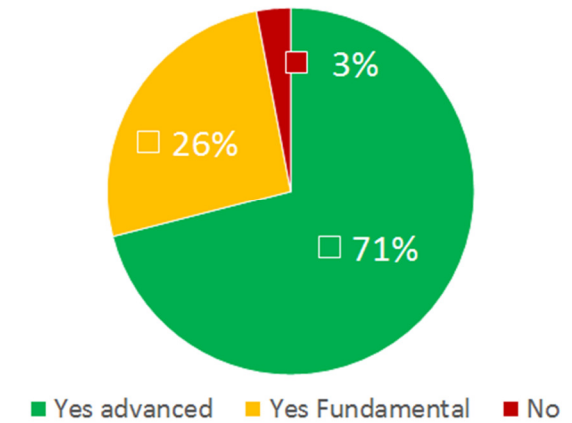
Are you interesting in an International furniture Masters if it is available? %



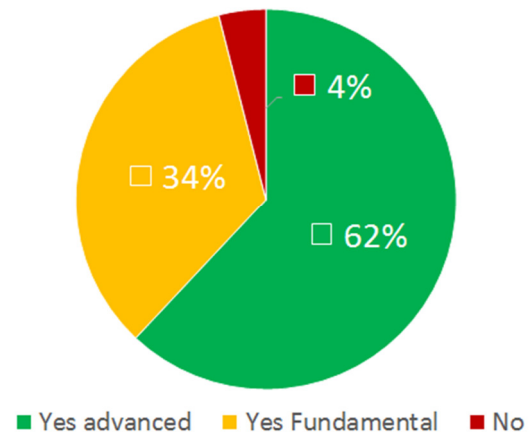
Production engineering – technology, process & maintenance



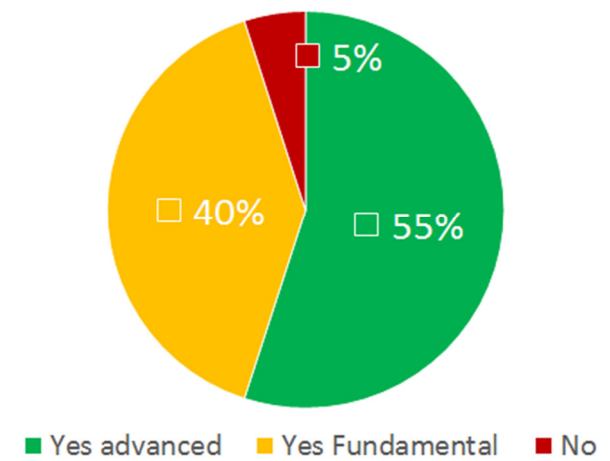
Innovation - Product & process improvement systems

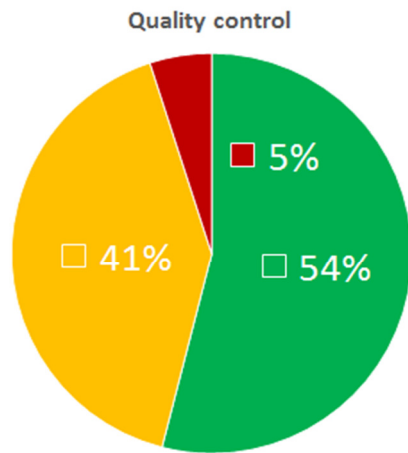


Production – scheduling and planning



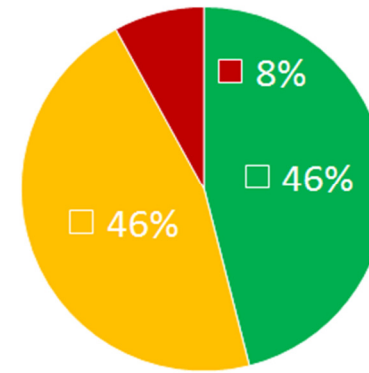
Materials Management





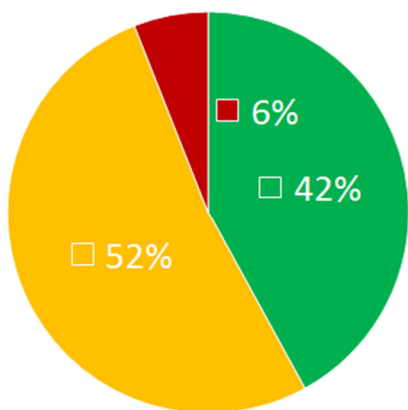
■ Yes advanced ■ Yes Fundamental ■ No

Workplace, leadership & personal effectiveness competences



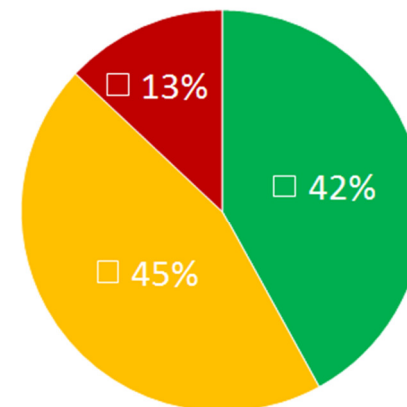
■ Yes advanced ■ Yes Fundamental ■ No

Operations & process management

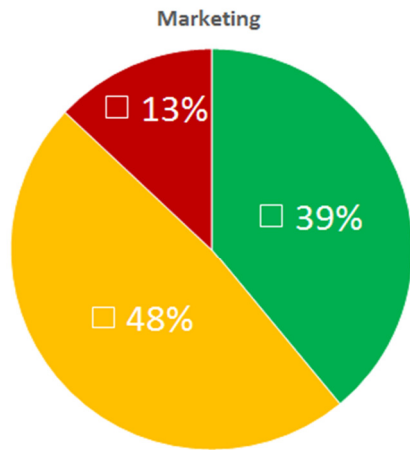


■ Yes advanced ■ Yes Fundamental ■ No

International trade

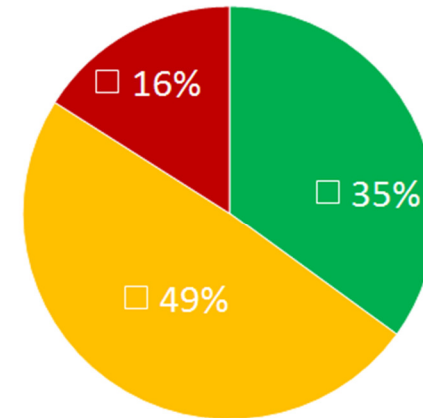


■ Yes advanced ■ Yes Fundamental ■ No



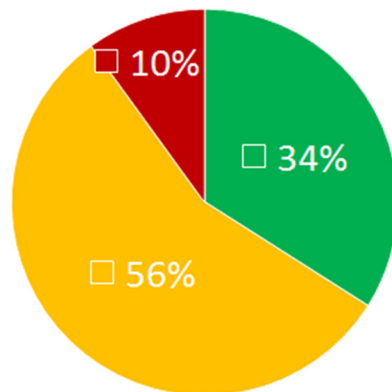
■ Yes advanced ■ Yes Fundamental ■ No

Training needs analysis/manpower/succession planning



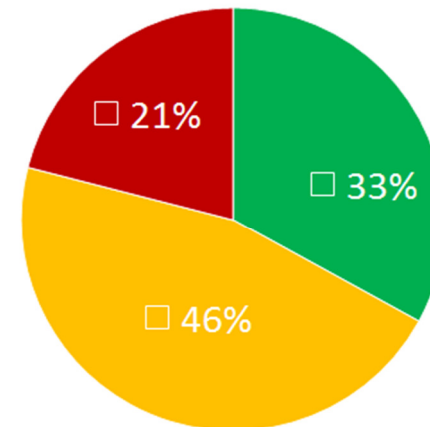
■ Yes advanced ■ Yes Fundamental ■ No

Logistics, warehouse, distribution & supply chain management

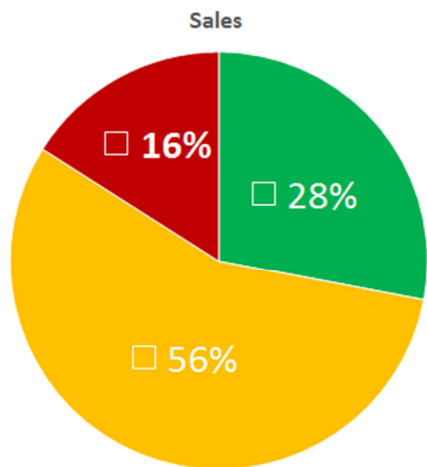


■ Yes advanced ■ Yes Fundamental ■ No

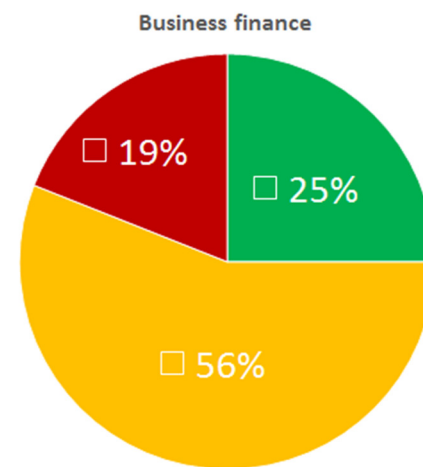
Human resources and conflict management



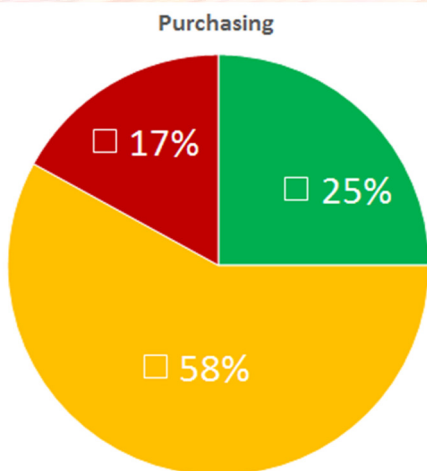
■ Yes advanced ■ Yes Fundamental ■ No



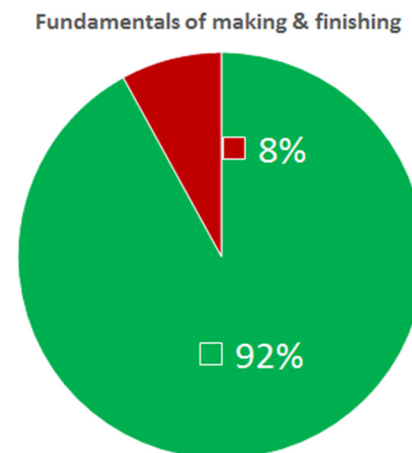
■ Yes advanced ■ Yes Fundamental ■ No



■ Yes advanced ■ Yes Fundamental ■ No

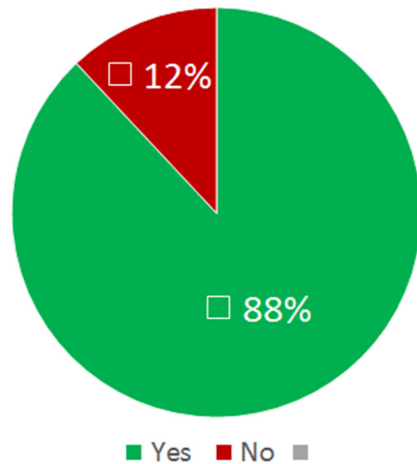


■ Yes advanced ■ Yes Fundamental ■ No

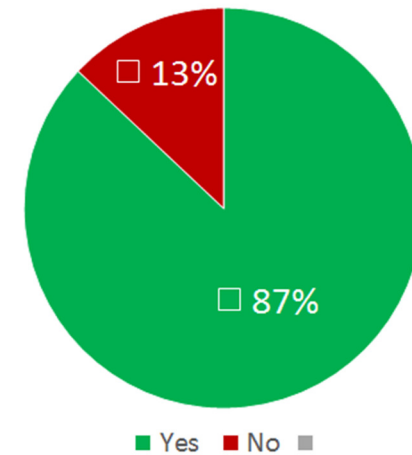


■ Yes ■ No ■

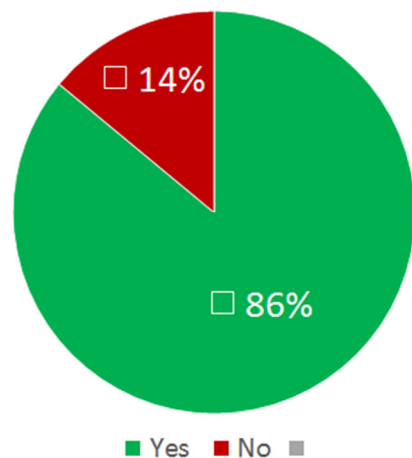
Fundamentals of enabling technology applications



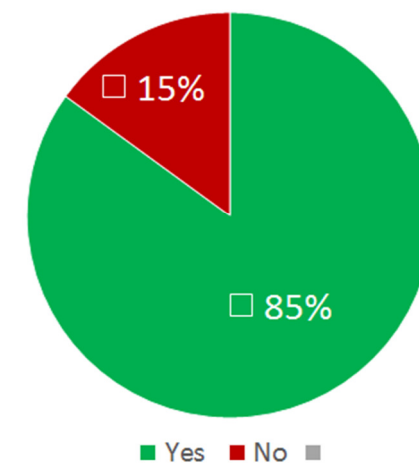
Fundamentals of design and furniture design history



Fundamentals of standards – regulatory and technical



Fundamentals of health/safety/environment laws



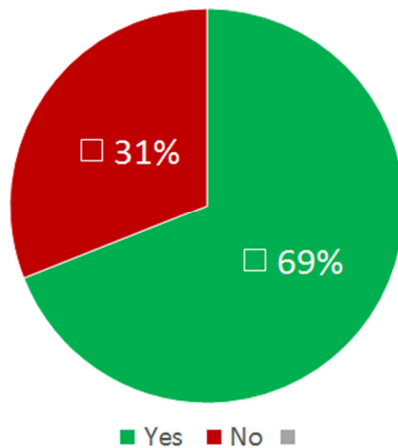


UK Focus Group - 15 companies and 20 major brands - 13th June 2017 –

The overwhelming view was that a Master Degree with a focus on furniture would be very valuable and the orientation and content should primarily be focused on production and distribution and those areas that it is difficult to recruit for, not the areas that cut across all industries like sales, marketing etc. In conclusion, because the focus group had chosen the production and workflow areas principally and recognizing that the scope of such a degree would be very wide indeed, it may be that options were provided to the student to allow them to concentrate on particular areas. Logistics, warehouse, distribution & supply chain management was considered as a vital area to cover given the changing nature of manufacturer – customer relationships - a greater emphasis being placed on reducing lead times and direct deliveries. Enterprise Resource Planning (ERP) was a priority too, and to accomplish this in-company consultants usually had to be hired. ERP involves business process management software that allows an organisation to use a system of integrated applications to manage the business and automate many back office functions related to technology and services. Related to supply change management, ERP can help to integrate manufacturing and distribution systems and customer relationship management systems.

The representative for the Association of Master Upholsterers & Soft Furnishings considered that a Masters' Degree would not be valuable to his members as they were very small employers who repaired and restored furniture. However, he did agree that for the manufacturer, such a degree would be of benefit.

Fundamentals of setting up a business



SPANISH FOCUS GROUP SURVEY RESULTS



There is a more detailed document to cover this focus group discussion held on 18th July 2017 and this is just a summary. There were 9 participating companies.

They analysed the consortium reports which listed & discussed Master's Degrees across the EU as well as the academic programmes of the partner educational institutions. It was concluded that while there are good programs in existence, they needed to be updated and integrated with others to enable a more comprehensive training programme.

In fact, it was agreed that 2 groups of 'Design and Engineering' and 'Production and Distribution' should be merged and integrated into one Masters' Degree. The view was that a final Masters' should consist of between 60 and 90 ECTS; not any longer if it is to be completed in one to two years.

When analysing the existing courses across the EU, it was felt that countries with a tradition in furniture sector had strong training structures but it was also clear that the training programs across Europe were very different between countries and that would be a problem for the mobility of professionals. The group recommended the creation of a unique Masters' with validity in the EU foster the range of possibilities of furniture professionals.

Finally, the group discussed the contents of a Master's from their point of view at both advanced and basic level. Their views will be taken into account in a subsequent & complementary report to be written by the University of Murcia. See pages 21 to 28 for more detail.

ITALIAN FOCUS GROUP SURVEY RESULTS



The Group consisted of 12 furniture companies (all SMEs) dealing with different typologies of products: beds, mattresses, cabinets, furniture for office, partition walls and glass furniture.

The discussion took place with a variety of staff in each company including workers in the office, technical and research departments.

92% expressed support for a master degree for furniture. A greater percentage of the participants considered that advanced level competences are required in technical fields such as production engineering, but also in areas related to the commercial sphere, such as sales, marketing and international trade.

With regard to other competences, the majority of enterprises considered that the acquisition of basic level competences were sufficient.

Of the list of fundamental competences in the survey, the most important were thought to be those related to design, making, finishing, regulation and technical standards.

For a better understanding of the results, please see page 31.

POLISH FOCUS GROUP SURVEY RESULTS



8 companies and 2 fellow educational institutions. Participants agreed about visible differentiation of the programs of the consortium, clearly dividing into two major groups - Design (BUCKS, UNICAM-COSMOB) and Engineering/Production/Distribution (CETEM, WULS). It was agreed that such programs are not really comprehensive, however, it was agreed that:

Each specialization is in fact different profession

All of these professions are equally needed by the industry

Each entrepreneur would gladly see universal employee

Discussing a fact that contemporary Polish enterprises are mainly producing, it was concluded that second variant of the employee (engineer, businessman) is more valuable at present time

Future planned (and necessary) brand development will require first type (Designer) in not too distant time

Universal program is rather needed

Possibilities of deep incorporating all the topics are poor – considering desired length of the course

Shortage of staff in the factories is enormous – ranging from unqualified workers to the engineers and management, therefore course should be available online (hopefully most of the undertakers will start the jobs at the practices, during the course)

Special attention (advanced level course) should be given to:

- Production engineering – technology, process & maintenance
- Production – scheduling and planning
- Innovation, product & process improvement systems
- Workplace, leadership & personal effectiveness competences

5. Following subjects should be on the basic level:

- Operations, business, & process management
- Logistics, warehouse, distribution & supply chain management



contd

- Materials management
- Quality control (opinions between extended/basic was around 50/50)
- Purchasing
- Business finance (a few votes to remove)
- Sales
- Marketing (a few votes to remove)
- International trade (a few votes to remove, few votes to advance, depending on the corporation)
- Human resources and conflict management
- Training needs analysis/manpower/succession planning

ALL additional content should be added:

- Fundamentals of making & finishing (some votes against)
- Fundamentals of making & finishing (all votes after)
- Fundamentals of standards – regulatory and technical (some votes against)
- Fundamentals of health/safety/environment laws/risk management (some votes against)
- Fundamentals of enabling technology applications (all votes after)
- Fundamentals of setting up a business (some votes against)

It is necessary to remark, that subject as: Fundamentals of making & finishing / Fundamentals of enabling technology applications / were considered as most valuable and necessary, without any discussion



Italian Responses to IM-FUTURE Survey

					Of 45 respondents		
Competence	% Advanced	% Fundamental	% Ad Plus Fund	No	Advanced	Fundamental	No
Materials management	73	27	100	0	33	12	0
Production engineering – technology, process & maintenance	62	38	100	0	28	17	0
Innovation - Product & process improvement systems	62	33	95	5	28	15	2
Quality control	53	42	95	5	24	19	2
Marketing	53	42	95	5	24	19	2
Workplace, leadership & personal effectiveness competences	47	42	89	11	21	19	5
Production – scheduling and planning	44	53	97	3	20	24	1
International trade	42	40	82	18	19	18	8
Training needs analysis/manpower/succession planning	31	51	82	18	14	23	8
Operations & process management	29	64	93	7	13	29	3
Sales	27	53	80	20	12	24	9
Business finance	22	44	66	34	10	20	15
Human resources and conflict management	22	42	64	36	10	19	16
Purchasing	20	44	64	36	9	20	16
Logistics, warehouse, distribution & supply chain management	18	71	89	11	8	32	5
Fundamentals only	Yes	%	No	%			
Fundamentals of design and furniture design history	42	93	3	7			
Fundamentals of standards – regulatory and technical	41	91	4	9			
Fundamentals of making & finishing	40	89	5	11			
Fundamentals of health/safety/environment laws	37	82	8	18			
Fundamentals of enabling technology applications	34	76	11	24			
Fundamentals of setting up a business	32	71	13	29			



UK Responses to IM-FUTURE Survey

					Of 29 respondents		
Competence	% Advanced	% Fundamental	% Ad Plus Fund	No	Advanced	Fundamental	No
Operations & process management	72	24	96	3	21	7	1
Production engineering – technology, process & maintenance	69	28	97	3	20	8	1
Production – scheduling and planning	62	31	93	7	18	9	2
Innovation - Product & process improvement systems	62	24	86	14	18	7	4
Materials management	45	48	93	7	13	14	2
International trade	45	48	93	7	13	14	2
Workplace, leadership & personal effectiveness competences	42	55	97	3	12	16	1
Business finance	38	45	83	17	11	13	5
Quality control	34	52	86	16	10	15	4
Logistics, warehouse, distribution & supply chain management	31	59	90	10	9	17	3
Sales	31	45	76	24	9	13	7
Marketing	28	48	76	24	8	14	7
Human resources and conflict management	21	41	62	38	6	12	11
Training needs analysis/manpower/succession planning	21	48	69	31	6	14	9
Purchasing	17	66	83	17	5	19	5
Fundamentals only	Yes	%	No	%			
Fundamentals of design and furniture design history	28	97	1	3			
Fundamentals of making & finishing	28	97	1	3			
Fundamentals of standards – regulatory and technical	28	97	1	3			
Fundamentals of health/safety/environment laws	28	97	1	3			
Fundamentals of enabling technology applications	28	97	1	3			
Fundamentals of setting up a business	20	70	9	30			



Spain Responses to IM-FUTURE Survey

					Of 63 respondents		
	%	%	%				
Competence	Advanced	Fundamental	Ad Plus Fund	No	Advanced	Fundamental	No
Production engineering – technology, process & maintenance	83	16	99	1	52	10	1
Innovation - Product & process improvement systems	81	19	100	0	51	12	0
Production – scheduling and planning	70	27	97	3	44	17	2
Quality control	65	33	98	2	41	21	1
Materials management	56	44	100	0	35	28	0
Logistics, warehouse, distribution & supply chain management	51	48	99	1	32	30	1
Training needs analysis/manpower/succession planning	49	46	95	5	31	29	3
International trade	46	48	94	6	29	30	4
Operations & process management	44	51	95	5	28	32	3
Marketing	44	52	96	4	28	33	2
Human resources and conflict management	38	57	95	5	24	36	3
Workplace, leadership & personal effectiveness competences	37	56	93	7	23	35	5
Purchasing	37	60	97	3	23	38	2
Sales	32	62	94	6	20	39	4
Business finance	21	68	89	11	13	43	7
Fundamentals only	Yes	%	No	%			
Fundamentals of making & finishing	61	97	2	3			
Fundamentals of enabling technology applications	59	94	4	6			
Fundamentals of design and furniture design history	57	90	6	10			
Fundamentals of health/safety/environment laws	56	89	7	11			
Fundamentals of standards – regulatory and technical	50	79	13	21			
Fundamentals of setting up a business	46	73	17	27			



Polish Responses to IM-FUTURE Survey

	%	%	%	%	Of 44 respondents		
Competence	Advanced	Fundamental	Ad Plus Fund	No	Advanced	Fundamental	No
Production engineering – technology, process & maintenance	73	23	96	4	32	10	2
Innovation - Product & process improvement systems	70	30	100	0	31	13	0
Production – scheduling and planning	68	25	93	7	30	11	3
Workplace, leadership & personal effectiveness competences	61	32	93	7	27	14	3
Quality control	52	43	95	5	23	19	2
Human resources and conflict management	45	39	84	16	20	17	7
Materials management	41	41	82	18	18	18	8
International trade	34	43	77	23	15	19	10
Operations & process management	32	61	93	7	14	27	3
Logistics, warehouse, distribution & supply chain management	30	52	82	18	13	23	8
Training needs analysis/manpower/succession planning	30	50	80	20	13	22	9
Business finance	25	59	84	16	11	26	7
Marketing	25	45	70	30	11	20	13
Sales	23	57	80	20	10	25	9
Purchasing	20	61	81	18	9	27	8
Fundamentals only	Yes	%	No	%			
Fundamentals of enabling technology applications	38	86	6	14			
Fundamentals of making & finishing	37	84	7	16			
Fundamentals of standards – regulatory and technical	37	84	7	16			
Fundamentals of health/safety/environment laws	32	73	12	27			
Fundamentals of design and furniture design history	31	70	13	30			
Fundamentals of setting up a business	27	61	17	39			



Survey comments from Italian respondents

With regard to the whole path, in my opinion, it should be split between two directions: marketing and design, after an initial basic training that includes notions about:

- Design basics and design history of furnishings
- Supplies of norms and technical regulations
- Health / safety / environmental laws / risk management
- Supporting platforms for enabling technologies
- Business creation bases

I think continuous research of new technologies is very important, for a design to be always in tune with the times.

The Master should clarify on a basic level the entire operation of the furniture industry chain.

It should then define, at the level, two different paths: the first linked to the quality of the product, from the perspective of production. The second aimed should be aimed at the dynamics of organization - marketing, sales, international trade etc.

An analysis of new family, multi-ethnic, social groups, the evolution of society, and how these changes affect and condition the home.

Basic knowledge is always useful for the proper running of activities, obviously there are some areas where skills need to be more thorough and exhaustive. The list seems complete.

Holistic design, modelling and prototyping laboratory, study and research of environmentally friendly innovative materials. Techniques for digital drawing. Appropriate knowledge about respect for the environment and the use of clean energy for production.



Survey comments from Spanish respondents

Industrial design applied to furniture. Furniture construction materials: features and applications.

Knowledge also in the Design.

You must allow access to this master from fp.

CAD CAM CAE ERP

The masters should be a little more specific, that generality involves many issues to be addressed and can be very dense or very long.

Automation of production processes at basic and advanced level, and business applications of these processes.

Future Trends in Furniture Design and Technology.

Product design, modelling and rendering.

- Lean Manufacturing
- Quick Response Manufacturing
- Robotics
- 3D printing

Productive methods in different countries.

Functional design.

New materials applicable to the furniture industry.



Survey comments from Polish respondents

Foreign technical language

Communication Techniques. Generally understood basis of law

Competence in Lean Management, Kaizen.

Foreign languages with intensity for vocabulary used generally in furniture industry - production, trade, contracts, etc.

No additional note

Materials science,

- The ability to identify the knowledge and skills needed to accomplish the goal.
- Ability to independently acquire knowledge and skills
- Teamwork, team roles
- Designing and achieving goals; self-discipline



Survey comments from UK respondents

Intellectual property and communication.

The degree should ideally centre on areas in which other formal qualifications have tended to be lacking. Other specific qualifications are available in HR, Marketing, Logistics etc., and we can recruit staff easily with these qualifications. A Masters' degree in Furniture Production in our view should centre on the areas not so readily available and also would be more industry specific, preparing the graduate for senior Production Manager/Director roles.

It may be worth considering a combination of taught and e-learning modules to reduce the amount of time out of the business or provide both as options.

Both options for Masters should be available - college and e-learning.

Most important - Production engineering, Logistics, warehouse, distribution & supply chain management - and increasingly Enterprise Resource Planning being used.

Hard to comment fully without knowing the exact aims of such a qualification but in my opinion the key competences should be to do with production, quality, business leadership competencies and trading specific to furniture manufacturing. Issues such as sales, marketing, HR, training etc., whilst useful are more general, cross industry functions and are resources that are readily accessible in the market place

Emerging and current trends and forecasts, Technology and materials. The importance of good design in the furniture sector.

This is a very broad course covering everything from product Design and Development right through to logistics .Students will inevitably lean towards either the creative or the operational aspects that interest them the most. Should the course therefore have modules in all areas in year one then allow the students to specialise in year two?

Waste Management.

Understanding product Costs.

Value Engineering



Views of Spanish Focus Group

These are necessary at Advanced Level:

- Production engineering – technology, process & maintenance
  - Material properties, construction, product development including proto-types
  - Production technology, production optimisation
  - Production organisation and business administration
  - Mechanical engineering and automation
  - Maintenance management and tracking programs
  - Eco-sustainability including 'design-for-life'
- Logistics, warehouse, distribution & supply chain management
  - Transportation, distribution, logistics
  - Warehousing
  - Distribution requirements planning, inventory management
  - Demand management and forecasting
  - Enterprise resources planning and manufacturing resource planning
  - Security and hazardous materials regulations
  - Dispatching
  - Risk management
  - Warehouse management systems
  - Supply chain management and synchronisation
  - Vendor managed inventory
  - International regulations

- 
- Locating facilities
  - Strategic sourcing and purchasing
  - Business and supply chain strategy
  - Applying lean and six sigma tools
  - Materials management
    - Converting demand requirements into schedules for inventory acquisition
    - Calculate key inventory performance metrics
    - Inventory management
    - Communications with suppliers and with company departments
    - Sustainability
  - Product & process improvement systems
  - Purchasing
    - Internal demand analysis
    - Market analysis
    - Strategy development
    - Supplier analysis
    - Negotiation
    - Contract management
    - Supplier assessment
    - Supplier development
    - Change management
    - Optimization of purchasing process
    - Network building

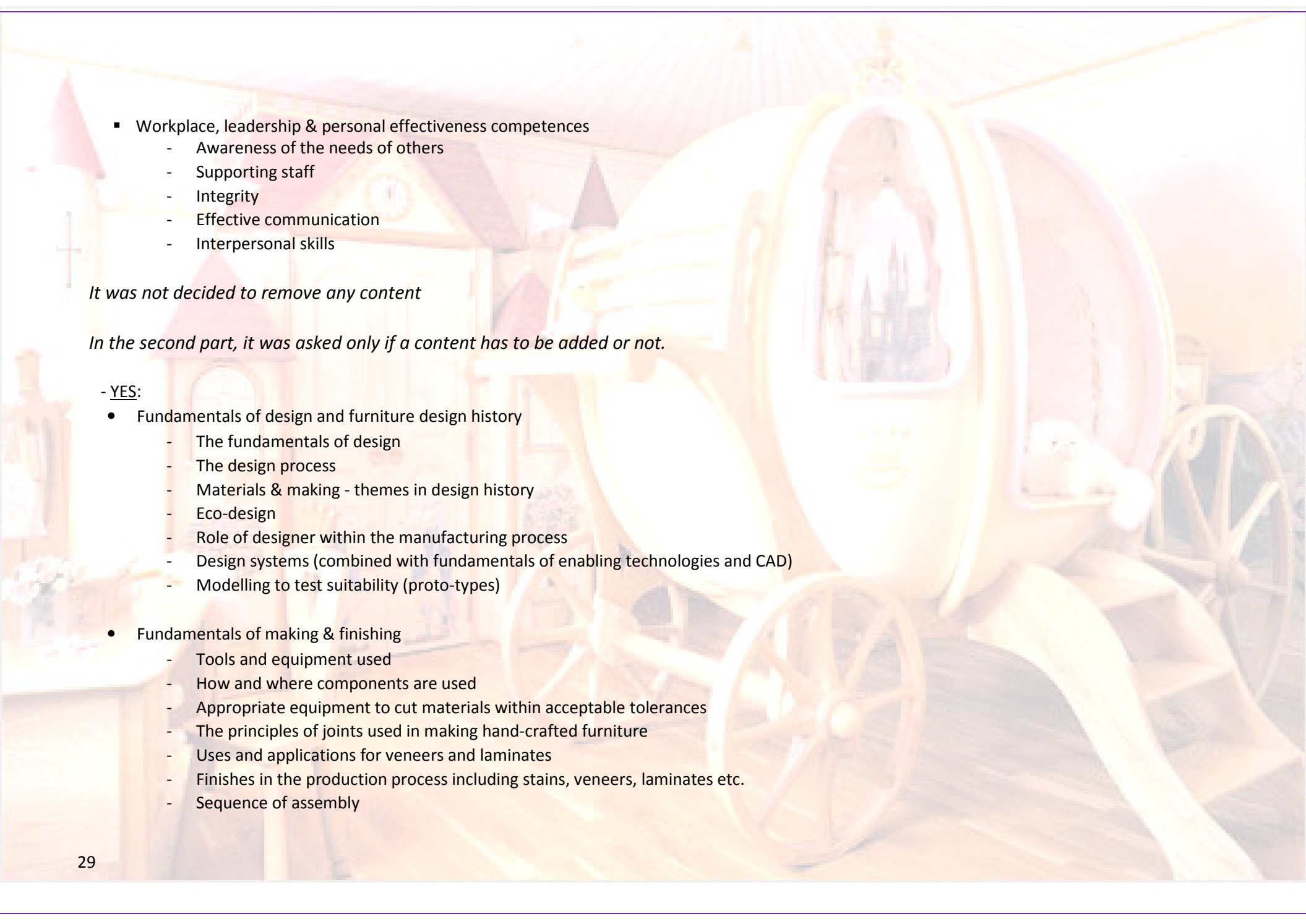
- 
- International trade
    - International trade
    - International joint Ventures
    - Legal Aspects of a Global Business
    - Transportation Techniques and Management
    - Strategic Marketing
    - Research – identifying market & country
    - Market entry
    - The export plan
    - Etiquette
    - Local sources for help and support
  - Human resources and conflict management
    - Legal compliance
    - People & negotiating skills
    - HR Processes
    - Conflict management and resolution

These are necessary at Basic Level:

- Production – scheduling and planning
  - Master planning
  - Production planning
  - Planning processes
  - Sales and operations planning
  - Demand management and forecasting
  - Strategic sourcing and purchasing
  - Capacity management
  - Scheduling techniques and control
  - Master production schedule and final assembly schedule
  - Risk management

- 
- Operations, business, & process management
    - Operations strategy
    - Manufacturing & finishing process environments
    - Standards (time measurement)
    - Process improvement and six sigma (statistical analysis tool)
    - Lean management
    - General sustainability
    - Identifying & eliminating causes of quality & process variations
    - Optimisation - systematic approaches to close process/system performance gaps
    - Continuous improvement - establishing key performance measurements, benchmarking metrics
    - Recycling opportunities
  - Innovation, product & process improvement systems
    - Technological surveillance & information management
    - Innovation management & systems
  - Quality control
    - Principles of Total quality management (TQM) – customer – supplier interface
    - Quality improvement tools - six sigma/ flowcharts/ Pareto charts/cause-and-effect diagrams/control charts/check sheets/scatter diagrams/histograms
    - Continuous improvement
    - Statistical techniques
    - Standards registration
  - Business finance
    - Financial Accounting and Reporting
    - Cost Accounting and Management
    - Business Planning
    - Management and Reporting Analysis
    - Accounting Information Systems
    - Tax Accounting

- 
- Sales
    - Develop, assess and implement national international sales strategies
    - Analyse, assess and apply methods and tools to support the sales performance
    - Assess the competitive position of a business
    - Substantiate and communicate the chosen strategies into a sales plan
    - Create a motivating environment
  - Marketing
    - Advertising and Sales Promotion
    - Branding and Positioning
    - Content Marketing
    - Customer Experience Management
    - Customer Relationship Management
    - Digital Marketing
    - Event Management
    - Integrated Marketing Communications
  - Training needs analysis/manpower/succession planning
    - Manpower analysis
    - Person Analysis – individuals and instructors
    - Work analysis/ Task Analysis
    - Performance analysis
    - Content analysis
    - Training suitability analysis
    - Cost-benefit analysis
    - Succession planning of internal talent to meet those future needs
    - Preparing plans to present to Directors

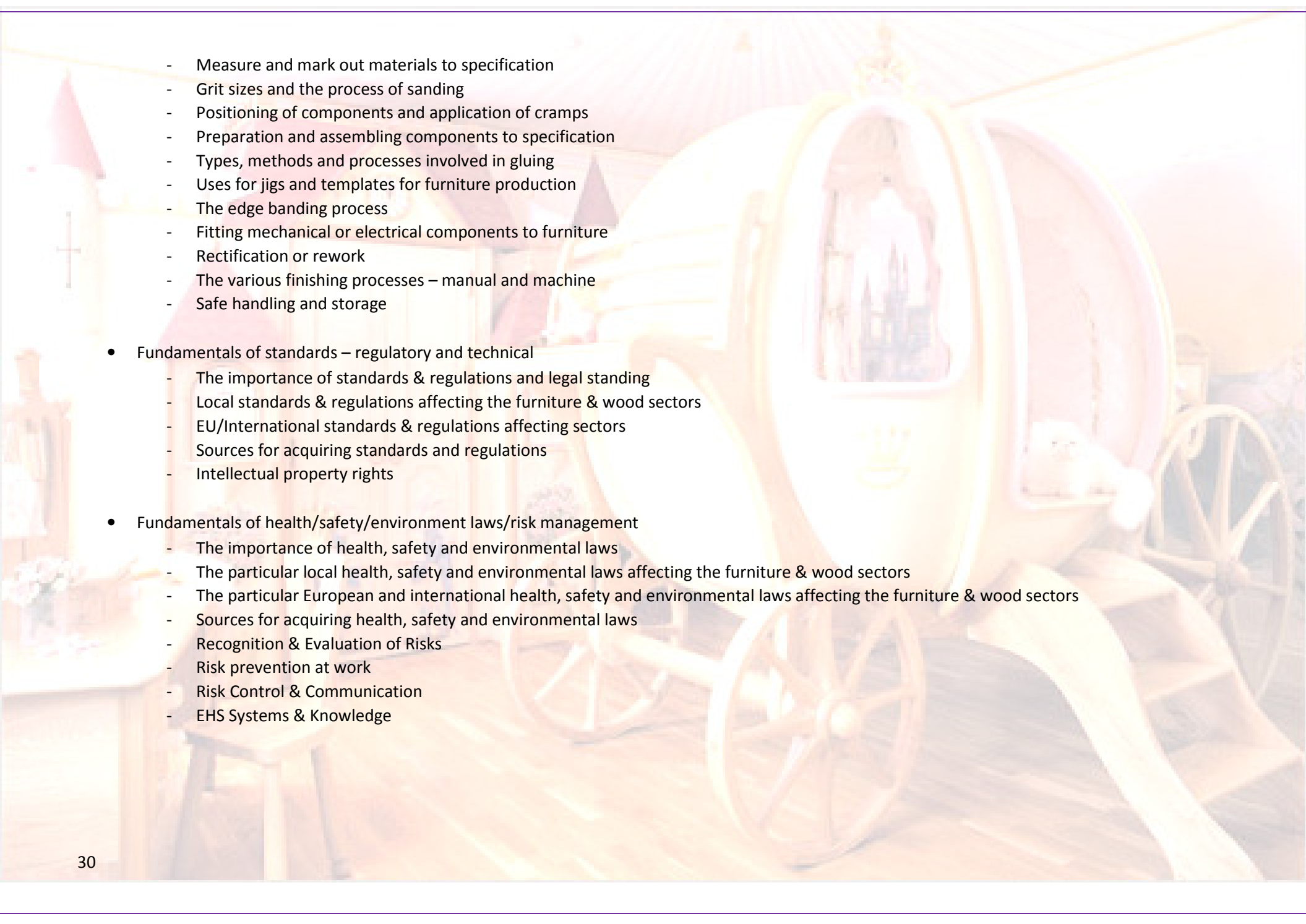
- 
- Workplace, leadership & personal effectiveness competences
    - Awareness of the needs of others
    - Supporting staff
    - Integrity
    - Effective communication
    - Interpersonal skills

It was not decided to remove any content

In the second part, it was asked only if a content has to be added or not.

- YES:

- Fundamentals of design and furniture design history
  - The fundamentals of design
  - The design process
  - Materials & making - themes in design history
  - Eco-design
  - Role of designer within the manufacturing process
  - Design systems (combined with fundamentals of enabling technologies and CAD)
  - Modelling to test suitability (proto-types)
- Fundamentals of making & finishing
  - Tools and equipment used
  - How and where components are used
  - Appropriate equipment to cut materials within acceptable tolerances
  - The principles of joints used in making hand-crafted furniture
  - Uses and applications for veneers and laminates
  - Finishes in the production process including stains, veneers, laminates etc.
  - Sequence of assembly

- 
- Measure and mark out materials to specification
  - Grit sizes and the process of sanding
  - Positioning of components and application of cramps
  - Preparation and assembling components to specification
  - Types, methods and processes involved in gluing
  - Uses for jigs and templates for furniture production
  - The edge banding process
  - Fitting mechanical or electrical components to furniture
  - Rectification or rework
  - The various finishing processes – manual and machine
  - Safe handling and storage
  - Fundamentals of standards – regulatory and technical
    - The importance of standards & regulations and legal standing
    - Local standards & regulations affecting the furniture & wood sectors
    - EU/International standards & regulations affecting sectors
    - Sources for acquiring standards and regulations
    - Intellectual property rights
  - Fundamentals of health/safety/environment laws/risk management
    - The importance of health, safety and environmental laws
    - The particular local health, safety and environmental laws affecting the furniture & wood sectors
    - The particular European and international health, safety and environmental laws affecting the furniture & wood sectors
    - Sources for acquiring health, safety and environmental laws
    - Recognition & Evaluation of Risks
    - Risk prevention at work
    - Risk Control & Communication
    - EHS Systems & Knowledge

- 
- Fundamentals of enabling technology applications
    - Materials requirements planning systems
    - Manufacturing resource planning systems
    - Sales Order Processing systems
    - 3-D visualization
    - 3-D printing (proto types)
    - Computer aided design (CAD)
    - Computer Aided Manufacture including cutting optimisation systems
    - Enterprise Resource Planning
    - Production Management Information Systems
    - Inventory Control Systems
    - Warehousing and Distribution Systems
    - Integrated Manufacturing and Distribution Systems
    - Customer relationship management systems
    - Integrated Accounting Systems
    - Internet of things

- NO:

- Fundamentals of setting up a business
  - Analyse entrepreneurial and market potential
  - Build the business idea
  - Developing the marketing approach
  - Plan the operations
  - Plan the budget
  - Create the business plan
  - Sources of help and funding



Views of UK Focus Group

Focus Group - Competence	Advanced	Fundamental	No
Operations & process management	Y		
Production engineering – technology, process & maintenance	Y		
Production – scheduling and planning	Y		
Innovation - Product & process improvement systems			Y
Materials management	Y		
International trade	Y		
Workplace, leadership & personal effectiveness competences		Y	
Business finance			Y
Quality control		Y	
Logistics, warehouse, distribution & supply chain management	Y		
Sales			Y
Marketing			Y
Human resources and conflict management			Y
Training needs analysis/manpower/succession planning			Y
Purchasing	Y		
Fundamentals only	Yes	No	
Fundamentals of design and furniture design history	Y		
Fundamentals of making & finishing	Y		
Fundamentals of standards – regulatory and technical	Y		
Fundamentals of health/safety/environment laws	Y		
Fundamentals of enabling technology applications	Y		
Fundamentals of setting up a business		Y	



Views of Italian Focus Group

Production engineering – technology, process & maintenance

Yes – advanced: 75%

Yes – fundamental: 17%

No: 8%

Production – scheduling and planning

Yes – advanced: 33%

Yes – fundamental: 67%

Operations, business, & process management

Yes – advanced: 17%

Yes – fundamental: 83%

Innovation, product & process improvement systems

Yes – advanced: 8%

Yes – fundamental: 75%

No: 17%

Materials management

Yes – advanced: 42%

Yes – fundamental: 50%

No: 8%

Logistics, warehouse, distribution & supply chain management

Yes – advanced: 8%

Yes – fundamental: 75%

No: 17%

Quality control

Yes – advanced: 25%

Yes – fundamental: 58%

No: 17%

Purchasing

Yes – advanced: 8%

Yes – fundamental: 33%

No: 58%

Business finance

Yes – advanced: 33%

Yes – fundamental: 25%

No: 42%

Sales

Yes – advanced: 50%

Yes – fundamental: 42%

No: 8%

Marketing

Yes – advanced: 58%

Yes – fundamental: 33%

No: 8%

International trade

Yes – advanced: 58%

Yes – fundamental: 42%

Human resources and conflict management

Yes – advanced: 25%

Yes – fundamental: 42%

No: 33%

Training needs analysis/manpower/succession planning

Yes – advanced: 17%

Yes – fundamental: 50%

No: 33%



Workplace, leadership & personal effectiveness competences

Yes: 75%

No: 25%

Fundamentals of design and furniture design history

Yes: 75%

No: 25%

Fundamentals of making & finishing

Yes: 83%

No: 17%

Fundamentals of standards – regulatory and technical

Yes: 83%

No: 17%

Fundamentals of health/safety/environment laws/risk management

Yes: 67%

No: 33%

Fundamentals of enabling technology applications

Yes: 67%

No: 33%

Fundamentals of setting up a business - Entrepreneurship

Yes: 58%

No: 42%

CONCLUSION

Survey results

The majority of respondents were in support of a Master's degree specific to the sector and through a college based course, although this does not rule out some e-learning modules which also found favour with some. While, the individual results did vary a little between the partner countries, for 'advanced level', the overall result placed the competence 'Production engineering – technology, process & maintenance' as first. Second was 'Innovation - Product & process improvement systems' and third was 'Production – scheduling and planning'.

In fact, the same 3 areas came top in the overall result and in the same order when the answers to 'Yes - Advanced level' were added to 'Yes – Fundamental level'.

At individual country level the results were:

ADVANCED LEVEL	POSITION IN COUNTRY							
	Italy		Poland		Spain		UK	
Order of overall result	A	A + F	A	A + F	A	A + F	A	A + F
1 st . Production engineering – technology, process & maintenance	2	1 (joint)	1	2	1	2	2	1
2 nd . Innovation - Product & process improvement systems	3	3 (joint)	2	1	2	1	3 (joint)	9 (joint)
3 rd . Production – scheduling and planning	7	3	3	4 (joint)	3	6 (joint)	3 (joint)	4 (joint)
A = Advanced Level / F = Fundamental Level								

The survey results therefore show a solidly vote for a Master's Degree covering the area of Production engineering.

This particular degree could possibly lend itself to the supportive (at fundamental level) competences of Making & finishing and Furniture design & history. These came 1st and 3rd on the overall results survey. 'Enabling technologies' came 2nd but may be difficult to cover because of a suspected shortage of skilled lecturers in this area that would be able to cover the full spectrum of technologies.

Although, arguably too, 'Workplace, leadership & personal effectiveness competences' could readily be applied at fundamental level which is often the case in degrees. This particular category was included in the 'Advanced or Fundamental Level' questions and came 6th at Advanced Level and 7th when 'Advanced / Fundamental Level' responses were totalled. In fact, the combined total equalled the total for Fundamentals of making & Finishing.

FUNDAMENTAL LEVEL	POSITION IN COUNTRY			
	Italy	Poland	Spain	UK
Order of overall result	F	F	F	F
1 st Fundamentals of making & finishing	3	2 (joint)	1	1 (joint)
2 nd Fundamentals of enabling technology applications	5	1	2	1 (joint)
3 rd Fundamentals of design and furniture design history	1	5	3	1 (joint)

Comments by survey respondents: These were quite varied and will be useful when framing the content of competences and outcomes.

Focus Groups

UK

At Advanced level the group identified Production & Distribution as the areas of most interest to the industry, because of the increasing interface – through deliveries etc., – with the end user and the increasing use of advanced machinery and technology. The UK group did not see 'Innovation - Product & process improvement systems' as a necessary part of a degree for the industry (although 4th in UK survey results).

Spain

The focus group agreed that 2 groups of 'Design and Engineering' and 'Production and Distribution' should be merged and integrated into one Masters' Degree. The view was that a final Masters' should consist of between 60 and 90 ECTS; not any longer if it is to be completed in one to two years.

Italy

A greater percentage of the participants considered that advanced level competences are required in technical fields such as production engineering, but also in areas related to the commercial sphere, such as sales, marketing and international trade. Of the list of fundamental competences in the survey, the most important were thought to be those related to design, making, finishing, regulation and technical standards.

Two thirds of the Focus Group considered that the training should be college based.

Poland

Special attention (advanced level course) should be given to: Production engineering – technology, process & maintenance, Production – scheduling and planning, Innovation, product & process improvement systems, Workplace, leadership & personal effectiveness competences. In addition to this certain basic level and additional content were outlined. Please see focus group results.

'Report on the Furniture and woodworking Industry: academic programmes' - University of Murcia

The earlier IMFUTURE report analysed the current higher education programmes in the EU and as part of its conclusion, stated:

'An example of this are the two groups in which we can divide the programmes of IM-FUTURE partners: Design and Engineering, Production and Distribution. Both are represented by a pair of countries, so a joint Degree would cover almost all the enterprises needs in the sector'.