Projects and Products Portal for Leonardo da Vinci

# Assistance systems for the Operating (services, maintenance and business) of CNC controllers and systems (CNC-EUCAM)

DE/10/LLP-LdV/TOI/147304

http://www.adam-europe.eu/adam/project/view.htm?prj=7025

## Project Information

| | |
|---|---|
| Title: | Assistance systems for the Operating (services, maintenance and business) of CNC controllers and systems (CNC-EUCAM) |
| Project Number: | DE/10/LLP-LdV/TOI/147304 |
| Year: | 2010 |
| Project Type: | Transfer of Innovation |
| Status: | completed |
| Country: | DE-Germany |
| Marketing Text: | There VINCI innovation transfer project became with CNC-EUCAM Leonardo The a work process accompanying, methods and tools " virtual Reality " a using multilingual production learning system for the industrial production developed. The assistance system is in the studying life accompanyingly and knowledge management of CNC operator been tested in the production of CNC controllers, in the industrial use and in the education and further education. By the connection of studying work process-orientedly and knowledge management in the production with CNC controllers and systems an infrastructure could be tested for learning production technicians life accompanyingly in the metalworking industry at a European level. |
| Summary: | CNC-EUCAM enlarges the content on this one as an integral studying infrastructure Value-added chain. The knowledge of suppliers, machinery manufacturers and users of CNC controllers and systems can continuously be integrated also after project completion. This shall improve the technical cooperation of users, machinery manufacturers and suppliers, information = by a common (infrastructure study) - also gets multilingual - used.<br>Furthermore CNC-EUCAM represents a training tool with the help of which it is possible to represent production more industrially also in the European space competences of production technicians and in working order holders in this partial sector comparably. First and further education being able to be purchased directly in the work process. You are directly in the learning system documented and any time open.<br>The CNC-EUCAM learning system establishes studying work process integratedly in the production. This means that the job gets simultaneous for the employee to the studying place. For the construction of the studying contents of CNC-EUCAM therefore so-called "studying locating analyses" were carried out. Information a first orientation gives the studying locating analysis for a job regarding the competence requirements and basis for the design is of (process = study). To this a survey of the attacking tasks and activities was made in the first step in a Quick Scan at the studying place. These activities were then subdivided into single work steps again.<br>Result of this analysis is a so-called work process matrix: She gives a summary of all attacking activities production plant at a complex CNC controller/.<br>In the next step the individual work steps were analysed at this, which special information the employee needs to be able to execute the activity belonging to the work step professionally. The relevant information about tools, components, auxiliary materials, quality relevant notes as well as important experiences at the execution then got common with the employees a job based on available documentations and the experience from long-standing employees the activity documents. |
| Description: | Step 1: Acquirement of competence standards for the Operating at CNC controllers and systems<br>Step 2: Construction of competence profiles for significantly different activities in this partial sector<br>Step 3: Development of work process-oriented support systems for a flexible Operating in the partial sector<br>Step 4: Prooftesting and evaluation of the CNC-EUCAM among the project partners in the national languages of the partners (not involved in the development of the support systems)<br>Step 5: Development of mobility measures for the broad introduction of the CNC- |

## Project Information

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|---|---|
| | EUCAM |
| Themes: | *** Sustainability<br>*** Lifelong learning<br>*** Enterprise, SME<br>*** Continuous training<br>*** Initial training<br>** Utilization and distribution of results<br>** ICT |
| Sectors: | *** Administrative and Support Service Activities<br>*** Manufacturing<br>*** Education |
| Product Types: | description of new occupation profiles<br>teaching material<br>evaluation methods |
| Product information: | Listing of the activities of the CNC-Operating work scientifically justified contracts with all partners of the syndicate database for an assistance system - - , coordinated between the partners - competence profiles of the CNC-Operating - the CNC-Operating hierarchically jointed user interface of the assistance system helping hands for additional qualifications (exemplary for German and Austrian occupation that requires trainings of the metal processing) - implementation of project results in Ausbildungsregularien - performance point cnc-Operating vs. German metal professions - external evaluation (competence acquisition vs. a classic education; Inclusion of the project results in various development projects for the CNC mechanical engineering; Planning of a combined education for metal professions in Slovakia.) |
| Projecthomepage: | www.cnc-eucam.de |

## Project Contractor

| | |
|---|---|
| Name: | Europäisches Bildungswerk für Beruf und Gesellschaft gGmbH |
| City: | Magdeburg |
| Country/Region: | Magdeburg |
| Country: | DE-Germany |
| Organization Type: | initial training |
| Homepage: | http://www.ebg.de |

### Contact Person


| | |
|---|---|
| Name: | Dr. Frank Schmidt |
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| City: | Magdeburg |
| Country: | DE-Germany |
| Telephone: | ++49 (0) 391 541 94 77 |
| Fax: | ++49 (0) 391 561 6008 |
| E-mail: | f.schmidt@ebg.de |
| Homepage: | http://www.ebg.de |

## Coordinator

| | |
|---|---|
| Name: | Europäisches Bildungswerk für Beruf und Gesellschaft gGmbH |
| City: | Magdeburg |
| Country/Region: | Magdeburg |
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| Organization Type: | initial training |
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| Fax: | ++49 (0) 391 561 6008 |
| E-mail: | f.schmidt@ebg.de |
| Homepage: | http://www.ebg.de |

# Partner

## Partner 1

| | |
|---|---|
| Name: | ARIS Formazione |
| City: | Perugia |
| Country/Region: | Umbria |
| Country: | IT-Italy |
| Organization Type: | joint body |
| Homepage: | http://arisformazione.it |

## Partner 2

| | |
|---|---|
| Name: | Euro-Project-Servis s.r.o. |
| City: | Zavadka |
| Country/Region: | Stredné Slovensko |
| Country: | SK-Slovakia |
| Organization Type: | continuing training institution |
| Homepage: | http://www.projektservis.sk |

## Partner 3

| | |
|---|---|
| Name: | Berufsförderungsinstitut Oberösterreich |
| City: | Linz |
| Country/Region: | Upper Austria |
| Country: | AT-Austria |
| Organization Type: | initial training |
| Homepage: | http://bbrz-gruppe.at |

## Partner 4

| | |
|---|---|
| Name: | Fraunhofer Gesellschaft IFF Magdeburg |
| City: | Magdeburg |
| Country/Region: | Magdeburg |
| Country: | DE-Germany |
| Organization Type: | research institution |
| Homepage: | http://iff.fraunhofer.de |

# Partner

## Partner 5

| | |
|---|---|
| Name: | G.M.W. Präzisionsmaschinen Burg |
| City: | Burg |
| Country/Region: | Sachsen-Anhalt |
| Country: | DE-Germany |
| Organization Type: | SME - small and medium-sized enterprise (up to 250 employees) |
| Homepage: | http://www.gmw-burg.de |

## Partner 6

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|---|---|
| Name: | SCHIESS Aschersleben GmbH |
| City: | Aschersleben |
| Country/Region: | Sachsen-Anhalt |
| Country: | DE-Germany |
| Organization Type: | SME - small and medium-sized enterprise (up to 250 employees) |
| Homepage: | http://www.schiess.de |

## Partner 7

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|---|---|
| Name: | Industrie- und Handelskammer Magdeburg |
| City: | Magdeburg |
| Country/Region: | Magdeburg |
| Country: | DE-Germany |
| Organization Type: | chamber |
| Homepage: | http://magdeburg.ihk.de |

## Partner 8

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|---|---|
| Name: | Union Werkzeugmaschinen Chemnitz |
| City: | Chemnitz |
| Country/Region: | Sachsen |
| Country: | DE-Germany |
| Organization Type: | SME - small and medium-sized enterprise (up to 250 employees) |
| Homepage: | http://www.union-machines.com |

# Partner

## Partner 9

| | |
|---|---|
| Name: | Romanian-German-University Sibiu |
| City: | Sibiu |
| Country/Region: | Nord Vest |
| Country: | RO-Romania |
| Organization Type: | university/Fachhochschule/academy |
| Homepage: | http://roger-univ.ro |

## Partner 10

| | |
|---|---|
| Name: | European Technology Sp.z.o. |
| City: | Warschau |
| Country/Region: | Mazowieckie |
| Country: | PL-Poland |
| Organization Type: | SME - small and medium-sized enterprise (up to 250 employees) |
| Homepage: | http://eurotec.pl |

## Project Files

Anlage 10 - Virtuelle Maschine.pdf

http://www.adam-europe.eu/prj/7025/prj/Anlage%2010%20-%20Virtuelle%20Maschine.pdf

Anlage 11a - Arbeitsorganisationen CNC-Fertigung-Partner.pdf

http://www.adam-europe.eu/prj/7025/prj/Anlage%2011a%20-%20Arbeitsorganisationen%20CNC-Fertigung-Partner.pdf

Anlage 11a ital.pdf

http://www.adam-europe.eu/prj/7025/prj/Anlage%2011a%20ital.pdf

Anlage 11-Arbeitsorganisationen CNC-Fertigung-Partner.pdf

http://www.adam-europe.eu/prj/7025/prj/Anlage%2011-Arbeitsorganisationen%20CNC-Fertigung-Partner.pdf

Anlage 12 - vollständige Handlung (CNC) ZerspanungsmechanikerIN.pdf

http://www.adam-europe.eu/prj/7025/prj/Anlage%2012%20-%20vollst%C3%A4ndige%20Handlung%20%28CNC%29%20ZerspanungsmechanikerIN.pdf

Anlage 13b - Film zur Funktionsprobe der mechanischen Baugruppe.mp4

http://www.adam-europe.eu/prj/7025/prj/Anlage%2013b%20-%20Film%20zur%20Funktionsprobe%20der%20mechanischen%20Baugruppe.mp4

Anlage 14 - Exemplarische Lernprogramme für das CNC-Operating.pdf

http://www.adam-europe.eu/prj/7025/prj/Anlage%2014%20-%20Exemplarische%20Lernprogramme%20f%C3%BCr%20das%20CNC-Operating.pdf

Anlage 15a - TopFix - Unterweisung.pptx

http://www.adam-europe.eu/prj/7025/prj/Anlage%2015a%20-%20TopFix%20-%20Unterweisung.pptx

Anlage 15 - TopFix 2011 Prospekt.pdf

http://www.adam-europe.eu/prj/7025/prj/Anlage%2015%20-%20TopFix%202011%20Prospekt.pdf

Anlage 15 - TopMill 2011 Prospekt.pdf

http://www.adam-europe.eu/prj/7025/prj/Anlage%2015%20-%20TopMill%202011%20Prospekt.pdf

Anlage 16 - Expertise OvGU - Kompetenzen in betrieblichen Lernorten.pdf

http://www.adam-europe.eu/prj/7025/prj/Anlage%2016%20-%20Expertise%20OvGU%20-%20Kompetenzen%20in%20betrieblichen%20Lernorten.pdf

## Project Files

Anlage 17 - Liste der Kompetenzen.pdf

http://www.adam-europe.eu/prj/7025/prj/Anlage%2017%20-%20Liste%20der%20Kompetenzen.pdf

Anlage 18 - Exemplarische Analyse des deutschen Berufs Zerspanungsmechaniker.pdf

http://www.adam-europe.eu/prj/7025/prj/Anlage%2018%20-%20Exemplarische%20Analyse%20des%20deutschen%20Berufs%20Zerspanungsmechaniker.pdf

Anlage 19 - Beschreibung von Kompetenzstandards.pdf

http://www.adam-europe.eu/prj/7025/prj/Anlage%2019%20-%20Beschreibung%20von%20Kompetenzstandards.pdf

Anlage 1a CNC - Operating - arbeitswissenschaftliche Grundlagen.pdf

http://www.adam-europe.eu/prj/7025/prj/Anlage%201a%20CNC%20-%20Operating%20-%20arbeitswissenschaftliche%20Grundlagen.pdf

Anlage 1 - Kompetenzen im Tätigkeitsfeld „CNC-Operating“.pdf

http://www.adam-europe.eu/prj/7025/prj/Anlage%201%20-%20Kompetenzen%20im%20T%C3%A4tigkeitsfeld%20%E2%80%9ECNC-Operating%E2%80%9C.pdf

Anlage 20 - Struktur einer Kompetenzmatrix - Glossar CNC-Operating.pdf

http://www.adam-europe.eu/prj/7025/prj/Anlage%2020%20-%20Struktur%20einer%20Kompetenzmatrix%20-%20Glossar%20CNC-Operating.pdf

Anlage 21 - Kompetenzen CNC-Bediener.pdf

http://www.adam-europe.eu/prj/7025/prj/Anlage%2021%20-%20Kompetenzen%20CNC-Bediener.pdf

Anlage 22 - Database for an CNC - assistence sytem.pdf

http://www.adam-europe.eu/prj/7025/prj/Anlage%2022%20-%20Database%20for%20an%20CNC%20-%20assistence%20sytem.pdf

Anlage 23 - Interne Evaluation konkreter Lernsituationen eines CNC-Operating.pdf

http://www.adam-europe.eu/prj/7025/prj/Anlage%2023%20-%20Interne%20Evaluation%20konkreter%20Lernsituationen%20eines%20CNC-Operating.pdf

Anlage 24 - Lernsituation für ein CNC-Operating.pdf

http://www.adam-europe.eu/prj/7025/prj/Anlage%2024%20-%20Lernsituation%20f%C3%BCr%20ein%20CNC-Operating.pdf

Anlage 25a - ZIM - Projektantrag MODULO (Ziele).pdf

http://www.adam-europe.eu/prj/7025/prj/Anlage%2025a%20-%20ZIM%20-%20Projektantrag%20MODULO%20%28Ziele%29.pdf

## Project Files

Anlage 25 - Cyber-physische Produktion von Großanlagen.pdf

http://www.adam-europe.eu/prj/7025/prj/Anlage%2025%20-%20Cyber-physische%20Produktion%20von%20Gro%C3%9Fanlagen.pdf

Anlage 26 - Arbeitsteilige Prozesse im CNC - Operating.pdf

http://www.adam-europe.eu/prj/7025/prj/Anlage%2026%20-%20Arbeitsteilige%20Prozesse%20im%20CNC%20-%20Operating.pdf

Anlage 27 - Implementierung der Projektergebnisse in nationale Regelungen.pdf

http://www.adam-europe.eu/prj/7025/prj/Anlage%2027%20-%20Implementierung%20der%20Projektergebnisse%20in%20nationale%20Regelungen.pdf

Anlage 28 - Dissimination und Nachhaltigkeit.pdf

http://www.adam-europe.eu/prj/7025/prj/Anlage%2028%20-%20Dissimination%20und%20Nachhaltigkeit.pdf

Anlage 29 - Virtual reality Schulungssystem.pdf

http://www.adam-europe.eu/prj/7025/prj/Anlage%2029%20-%20Virtual%20reality%20Schulungssystem.pdf

Anlage 2 - Fachkompetenz Zerspanung.pdf

http://www.adam-europe.eu/prj/7025/prj/Anlage%202%20-%20Fachkompetenz%20Zerspanung.pdf

Anlage 30 - Leistungspunkte.pdf

http://www.adam-europe.eu/prj/7025/prj/Anlage%2030%20-%20Leistungspunkte.pdf

Anlage 31 - Vereinbarung von Lernsituationen in Mobilitätsmaßnahmen.pdf

http://www.adam-europe.eu/prj/7025/prj/Anlage%2031%20-%20Vereinbarung%20von%20Lernsituationen%20in%20Mobilit%C3%A4tsma%C3%9Fnahmen.pdf

Anlage 32 - Braunau AZUBI - Training.pdf

http://www.adam-europe.eu/prj/7025/prj/Anlage%2032%20-%20Braunau%20AZUBI%20-%20Training.pdf

Anlage 3 - Handlungsfelder im dt. Beruf „Zerspanungsmecheniker-in.pdf

http://www.adam-europe.eu/prj/7025/prj/Anlage%203%20-%20Handlungsfelder%20im%20dt.%20Beruf%20%E2%80%9EZerspanungsmecheniker-in.pdf

Anlage 4 - Kompetenzmatrix für das Tätigkeitsfeld „CNC-Operating.pdf

http://www.adam-europe.eu/prj/7025/prj/Anlage%204%20-%20Kompetenzmatrix%20f%C3%BCr%20das%20T%C3%A4tigkeitsfeld%20%E2%80%9ECNC-Operating.pdf

## Project Files

Anlage 5 - Glossar für das Tätigkeitsfeld „CNC-Operating“.pdf

http://www.adam-europe.eu/prj/7025/prj/Anlage%205%20-%20Glossar%20f%C3%BCr%20das%20T%C3%A4tigkeitsfeld%20%E2%80%9ECNC-Operating%E2%80%9C.pdf

Anlage 6 - Struktur des Datenbanksystems für ein CNC-Assistenzsystem.pdf

http://www.adam-europe.eu/prj/7025/prj/Anlage%206%20-%20Struktur%20des%20Datenbanksystems%20f%C3%BCr%20ein%20CNC-Assistenzsystem.pdf

Anlage 7a-database - dt-engl.pdf

http://www.adam-europe.eu/prj/7025/prj/Anlage%207a-database%20-%20dt-engl.pdf

Anlage 7 - MindMap der Datenbank für ein Assistenzsystem des CNC-Operating.mmap

http://www.adam-europe.eu/prj/7025/prj/Anlage%207%20-%20MindMap%20der%20Datenbank%20f%C3%BCr%20ein%20Assistenzsystem%20des%20CNC-Operating.mmap

Anlage 7 - MindMap der Datenbank für ein Assistenzsystem des CNC-Operating.pdf

http://www.adam-europe.eu/prj/7025/prj/Anlage%207%20-%20MindMap%20der%20Datenbank%20f%C3%BCr%20ein%20Assistenzsystem%20des%20CNC-Operating.pdf

Anlage 8 - TC 110 im EBG.pdf

http://www.adam-europe.eu/prj/7025/prj/Anlage%208%20-%20TC%20110%20im%20EBG.pdf

Anlage 8 - union_tc 110 - Produktbeschreibung.pdf

http://www.adam-europe.eu/prj/7025/prj/Anlage%208%20-%20union_tc%20110%20-%20Produktbeschreibung.pdf

Anlage 9 - SCHIESS Fotos realer Maschinen.pdf

http://www.adam-europe.eu/prj/7025/prj/Anlage%209%20-%20SCHIESS%20Fotos%20realer%20Maschinen.pdf

Anlage 9 - SCHIESS virtuelle Maschinen.pdf

http://www.adam-europe.eu/prj/7025/prj/Anlage%209%20-%20SCHIESS%20virtuelle%20Maschinen.pdf

Anlage 9 - SCHIESS VMG.ppt

http://www.adam-europe.eu/prj/7025/prj/Anlage%209%20-%20SCHIESS%20VMG.ppt

Arbeitsorganisation ital.pdf

http://www.adam-europe.eu/prj/7025/prj/Arbeitsorganisation%20ital.pdf

# Project Files

Ergebnisse auf der Website.pdf

http://www.adam-europe.eu/prj/7025/prj/Ergebnisse%20auf%20der%20Website.pdf

Produktlisten für Abschlussbericht.pdf

http://www.adam-europe.eu/prj/7025/prj/Produktlisten%20f%C3%BCr%20Abschlussbericht.pdf

Produkt- vs Anlagenliste.pdf

http://www.adam-europe.eu/prj/7025/prj/Produkt-%20vs%20Anlagenliste.pdf

## Products

1 Product 1st: contract with NA-BIBB with EBG gGmbH, end and Controling of the contracts with the

2 Product 2nd: list of the professions (Instruction manual (PR06))

3 Product 3rd: Competence sections (Comparative studies (PR02))

4 Product 4th: Database for an assistance system for operating of CNC machines and systems

5 Product 5th: Man-machine interface for an Assistenzsystem "CNC operating" (Text (TXT); Database

6 Product 6th: Hand-outs for participants in additional / supplementary qualification courses

7 Product 7th: Sector-oriented methodology for processing hand-outs for participants in additional /

8 Product 8th: Implementation of the project results in valid educational regulations

9 Product 9th: External evaluation (Guidance materialfor new approaches and methodologies (PR15))

# Product 'Product 1st: contract with NA-BIBB with EBG gGmbH, end and Controling of the contracts with the project partners;'

| | |
|---|---|
| Title: | Product 1st: contract with NA-BIBB with EBG gGmbH, end and Controling of the contracts with the project partners; |
| Product Type: | others |
| Marketing Text: | Contract between NA-BIBB and EBG gGmbH, conclusion and controlling of contracts with the project partners; New or extended European partnerships (EUCO01) Precision planning, contracts and moderation with external third parties, public relations, flyer, Internet (www.cnc-eucam.de), preparation of interim and final report |
| Description: | The contract with partner 7 (ARIS Perugia (IT)) had been terminated on 31-10-2011; SCHIESS GmbH Aschersleben and G.M.W. Präzisionsmaschinen have been selected as new partners. |
| Target group: | Project partners and NA-BIBB |
| Result: | Contracts with NA-BIBB and the partners in the consortium; project planning and controlling |
| Area of application: | Project partnership |
| Homepage: | www.cnc-eucam.eu |
| Product Languages: | English<br>German |

# Product 'Product 2nd: list of the professions (Instruction manual (PR06))'

Title: Product 2nd: list of the professions (Instruction manual (PR06))

Product Type: program or curricula

Marketing Text: List of professions / activities from NQF / education provisions in the partner countries with comparable qualification stages in the FM field of activities, competence profiles and performance items for mutual recognition shall be defined and agreed in the national qualification schemes.

Description: On the occasion of the kick-off meeting  for the project on 10 and 11 November 2010 in Magdeburg the work package 2 with its sub-packages 2.1 (project planning) and 2.2 (selection of professions) was agreed. This resulted in the conclusion that the direct comparison of professions / activities of CNC-Operating on the basis of NQF (education terms of partner countries) seem to be not very promising. The partner P0 was asked to list the German professions / activities for the CNC-Operating exemplarily and to present the appropriate activities to the consortium in the form of a competence list. The competence lists are prepared in the partner languages and attached as files in English language.

Target group: Partners of the consortium, Education company for CNC-Operating
annex 1 a: CNC-Operating - work scientific Grundlagen.pdf
annex 2:  Special competence Zerspanung.pdf
annex 12 Complete action (CNC) in the occupation that requires training Zerspanungsmechaniker/-in
annex 17: List of the competences in the partner languages and in English
annex 18:  Exemplary analysis of the German occupation that requires training "Zerspanungsmechaniker/-in"

Result: Activity list of CNCOperating Competence list

Area of application: Planning of education activities of CNC-Operating

Homepage: www.cnc-eucam.de

Product Languages: Slovak
English
Romanian
Polish
Italian
German

## product files

Anlage 12 - vollständige Handlung (CNC) ZerspanungsmechanikerIN.pdf

http://www.adam-europe.eu/prj/7025/prd/2/1/Anlage%2012%20-%20vollst%C3%A4ndige%20Handlung%20%28CNC%29%20ZerspanungsmechanikerIN.pdf

Anlage 17 - Liste der Kompetenzen.pdf

http://www.adam-europe.eu/prj/7025/prd/2/1/Anlage%2017%20-%20Liste%20der%20Kompetenzen.pdf

Anlage 18 - Exemplarische Analyse des deutschen Berufs Zerspanungsmechaniker.pdf

http://www.adam-europe.eu/prj/7025/prd/2/1/Anlage%2018%20-%20Exemplarische%20Analyse%20des%20deutschen%20Berufs%20Zerspanungsmechaniker.pdf

Anlage 1a CNC - Operating - arbeitswissenschaftliche Grundlagen.pdf

http://www.adam-europe.eu/prj/7025/prd/2/1/Anlage%201a%20CNC%20-%20Operating%20-%20arbeitswissenschaftliche%

## product files

20Grundlagen.pdf

Anlage 2 - Fachkompetenz Zerspanung.pdf

http://www.adam-europe.eu/prj/7025/prd/2/1/Anlage%202%20-%20Fachkompetenz%20Zerspanung.pdf

# Product 'Product 3rd: Competence sections (Comparative studies (PR02))'

Title: Product 3rd: Competence sections (Comparative studies (PR02))

Product Type: program or curricula

Marketing Text: The LdV-Project CNC-EUCAM has been developed and tested as work-process-accompanying multilingual assistance system using methods and tools of the „Virtual Reality" for the operating in this sector (= production learning system for industrial manufacture) with the target of life-accompanying learning and knowledge management in production.

Description: Competence profiles of comparable qualification stages in the activity field of CNC-Operating of partner countries in the national languages of the participating partners. The competence profiles are assessed on the basic of a set-actual analysis. The content of teaching of the individual professions was used to determine the learnt skills (ACTUAL competences). The SET competences were determined branch-related so that the SET and ACTUAL sides can be compared with each other. After the comprehensive analysis of missing knowledge the qualification requirements will be defined. A matrix was prepared as auxiliary tool.

Target group: Users of CNC-Operating Educational institutes

Result: Competence profile (Comparative studies (PR02))
annex 1: Competences in the fields of activity "CNC-Operating" (de, Engl., sk, pl, it, ro. )
annex 20: Structure of a competence matrix (German and English. )
annex 4: Competence matrix for the fields of activity "CNC-Operating" (German and English. )
annex 5: Glossary for the fields of activity "CNC-Operating" (de, Engl., sk, pl, it, ro. )
annex 19: Description of competence standards (German. )
annex 21: CNC - operator (de, Engl., sk, pl, it, ro. )
• Competences
• Attributes, abilities and knowledge
• Descriptors of the EQF (Knowledge - Skills - Competence

Area of application: Development of learning situations

Homepage: www.cnc-eucam.de

Product Languages: Italian
Polish
German
Romanian
Slovak
English

## product files

Anlage 19 - Beschreibung von Kompetenzstandards.pdf

http://www.adam-europe.eu/prj/7025/prd/3/1/Anlage%2019%20-%20Beschreibung%20von%20Kompetenzstandards.pdf

Anlage 1 - Kompetenzen im Tätigkeitsfeld „CNC-Operating“.pdf

http://www.adam-europe.eu/prj/7025/prd/3/1/Anlage%201%20-%20Kompetenzen%20im%20T%C3%A4tigkeitsfeld%20%E2%80%9ECNC-Operating%E2%80%9C.pdf

Anlage 20 - Struktur einer Kompetenzmatrix - Glossar CNC-Operating.pdf

http://www.adam-europe.eu/prj/7025/prd/3/1/Anlage%2020%20-%20Struktur%20einer%20Kompetenzmatrix%20-%20Glossar%20CNC-Operating.pdf

## product files

Anlage 21 - Kompetenzen CNC-Bediener.pdf

http://www.adam-europe.eu/prj/7025/prd/3/1/Anlage%2021%20-%20Kompetenzen%20CNC-Bediener.pdf

Anlage 4 - Kompetenzmatrix für das Tätigkeitsfeld „CNC-Operating.pdf

http://www.adam-europe.eu/prj/7025/prd/3/1/Anlage%204%20-%20Kompetenzmatrix%20f%C3%BCr%20das%20T%C3%A4tigkeitsfeld%20%E2%80%9ECNC-Operating.pdf

Anlage 5 - Glossar für das Tätigkeitsfeld „CNC-Operating“.pdf

http://www.adam-europe.eu/prj/7025/prd/3/1/Anlage%205%20-%20Glossar%20f%C3%BCr%20das%20T%C3%A4tigkeitsfeld%20%E2%80%9ECNC-Operating%E2%80%9C.pdf

# Product 'Product 4th: Database for an assistance system for operating of CNC machines and systems'

| | |
|---|---|
| Title: | Product 4th: Database for an assistance system for operating of CNC machines and systems |
| Product Type: | program or curricula |
| Marketing Text: | Database for an assistance system for operating of CNC machines and systems (InteractiveResource (INT_RES); Database (DB); DE – German)<br>Database for description of CNC education and qualification workshops on the basis of a market-introduced Facility Management System |
| Description: | In the CNC education and qualification workshop of P0 some 20 different CNC machines and systems are in use; the database provides the assistance to CNC operators for selected operation and service activities in the workshop; they receive job-related access to operation and service performances and, exemplarily, VR-based simulations of such jobs. |
| Target group: | Users of CNC-Operating (manufacturers of CNC machines, metal-processing companies using such equipment, educational institutions with the focus on education and qualification for CNC-Operating |
| Result: | Database for an assistance system for the operating of CNC machines and systems (InteractiveResource (INT_RES); Database (DB); DE – German)<br>annex 22 - database for to assistance system for of The Öperating of CNC controller and System<br>annex 6 - structure of a database for assistance systems in the CNC - Operating<br>annex 8 - TC 110 in the EBG (+CD-ROM. )<br>annex 9 - SCHIESS real photos of real machines<br>annex 9 - SCHIESS virtual machines<br><br>CD-ROM in addition published product files (. )<br><br>annex 8 - CNCEUCAM_TC110_Union (film clipping+CD-ROM. )<br>annex 9 - SCHIESS VMG (PowerPointPresentation. )<br>annex 9 - SCHIESS (movie) |
| Area of application: | Manufacturers of CNC machines, service providers, metal-processing industry, educational institutes with the respective focus |
| Homepage: | www.cnc-eucam.de |
| Product Languages: | German |

## product files

Anlage 22 - Database for an CNC - assistence sytem.pdf

http://www.adam-europe.eu/prj/7025/prd/4/1/Anlage%2022%20-%20Database%20for%20an%20CNC%20-%20assistence%20sytem.pdf

Anlage 6 - Struktur des Datenbanksystems für ein CNC-Assistenzsystem.pdf

http://www.adam-europe.eu/prj/7025/prd/4/1/Anlage%206%20-%20Struktur%20des%20Datenbanksystems%20f%C3%BCr%20ein%20CNC-Assistenzsystem.pdf

Anlage 8 - TC 110 im EBG.pdf

http://www.adam-europe.eu/prj/7025/prd/4/1/Anlage%208%20-%20TC%20110%20im%20EBG.pdf

## product files

Anlage 9 - SCHIESS Fotos realer Maschinen.pdf

http://www.adam-europe.eu/prj/7025/prd/4/1/Anlage%209%20-%20SCHIESS%20Fotos%20realer%20Maschinen.pdf

Anlage 9 - SCHIESS virtuelle Maschinen.pdf

http://www.adam-europe.eu/prj/7025/prd/4/1/Anlage%209%20-%20SCHIESS%20virtuelle%20Maschinen.pdf

Anlage 9 - SCHIESS VMG.ppt

http://www.adam-europe.eu/prj/7025/prd/4/1/Anlage%209%20-%20SCHIESS%20VMG.ppt

# Product 'Product 5th: Man-machine interface for an Assistenzsystem "CNC operating" (Text (TXT); Database (DECIBEL); DE - German)'

Title: Product 5th: Man-machine interface for an Assistenzsystem "CNC operating" (Text (TXT); Database (DECIBEL); DE - German)

Product Type: program or curricula

Marketing Text: Operator surface for an assistance system "CNC-Operating" (Text (TXT); Database (DB); DE – German)
Hierarchically graded access to information of the database (Product 4)

Description: Systematic description of metal-processing workshops with database software from Facility Management:
• The first level of this description gives the arrangement of machines and auxiliary systems available in the workshop
• The second level gives descriptions of the individual machines and auxiliary systems according to their potential use and the technological-organisational conditions required for that; the required competences of operating staff shall be listed here as well
• In the third level machine-comprehensive information will be deposited in the a.m. database, such as:
o Multi-machine operation performed by the operating staff
o Operations scheduling
o Service, repair and maintenance
o Joint use of jigs, fixtures and tools
o …
The facility-management software package shall not only support the economic use of the workshop but also help to optimise workplace-near education and qualification activities of the workshops.

Target group: Operating staff of CNC-machines, educational institutions with the respective focus

Result: Database system for CNC-Operating (see further demonstration on the Website)
annex 7: - MindMap of the database for an assistance system of the CNC-Operating (MindManager 5 )
annex 7: - MindMap of the database for an assistance system of the CNC-Operating (pdf. )
annex 7 a: - database dt-engl

The combinations given 7 a in plant to other files can in the pdf file of the MindMapping of an enclosed CD - ROM be called. Works on the product web site www.cnc-eucam.eu same

Area of application: Support of CNC-Operating

Homepage: www.cnc-eucam.eu

Product Languages: German

## product files

Anlage 7a-database - dt-engl.pdf

http://www.adam-europe.eu/prj/7025/prd/5/1/Anlage%207a-database%20-%20dt-engl.pdf

Anlage 7 - MindMap der Datenbank für ein Assistenzsystem des CNC-Operating.mmap

http://www.adam-europe.eu/prj/7025/prd/5/1/Anlage%207%20-%20MindMap%20der%20Datenbank%20f%C3%BCr%20ein%20Assistenzsystem%20des%20CNC-Operating.mmap

## product files

Anlage 7 - MindMap der Datenbank für ein Assistenzsystem des CNC-Operating.pdf

http://www.adam-europe.eu/prj/7025/prd/5/1/Anlage%207%20-%20MindMap%20der%20Datenbank%20f%C3%BCr%20ein%20Assistenzsystem%20des%20CNC-Operating.pdf

Film_VR.wmv

http://www.adam-europe.eu/prj/7025/prd/5/1/Film_VR.wmv

Inventar-ProFM.mp4

http://www.adam-europe.eu/prj/7025/prd/5/1/Inventar-ProFM.mp4

# Product 'Product 6th: Hand-outs for participants in additional / supplementary qualification courses'

Title: Product 6th: Hand-outs for participants in additional / supplementary qualification courses

Product Type: teaching material

Marketing Text: Hand-outs for participants in additional / supplementary qualification courses (paper brochures (BRC); Website www.cnc-eucam.eu)
Proceeding from the procedure described in Product 5, the project partnership has prepared a summary with the following items:
• Possible targets of learning units to be achieved in the mobility measures
• Notes for qualitative assessment of learning results that can be achieved in the mobility measures, and
• Survey of organisational activities required for preparation, execution and evaluation.

Description: In contrast to other publically available hand-outs for participants in additional / supplementary qualification courses, the summary for planning, execution and evaluation of mobility measures of the project "CNC-EUCAM" available in the annex and in the internet is understood as working paper not only for planners and coaches but also for learning people actively participating in such measures.

Target group: Contracting partners (planners, coaches and participants in mobility measures)

Result: Specific summary of training and qualification measures in CNC-Operating to be planned, executed and evaluated on the basis of partnership
annex 26: Processes based on the division of labour in the CNC - Operating
annex 11: Labour organization CNC - production
Operational types of the CNC - production (dt, Engl., pl, sk, ro. )
annex 11 a: Labour organization CNC - production - partner
Example work schedule - legend glossary (dt, Engl., pl, sk, ro. )
annex 14: Exemplary tutorial programmes of the partners P0 and P4 for the CNC - Operating

Area of application: National and international training and qualification courses

Homepage: www.cnc-eucam.de

Product Languages: Romanian
Slovak
Italian
German
English

## product files

Anlage 11a - Arbeitsorganisationen CNC-Fertigung-Partner.pdf
http://www.adam-europe.eu/prj/7025/prd/6/1/Anlage%2011a%20-%20Arbeitsorganisationen%20CNC-Fertigung-Partner.pdf

Anlage 11a ital.pdf
http://www.adam-europe.eu/prj/7025/prd/6/1/Anlage%2011a%20ital.pdf

Anlage 11-Arbeitsorganisationen CNC-Fertigung-Partner.pdf
http://www.adam-europe.eu/prj/7025/prd/6/1/Anlage%2011-Arbeitsorganisationen%20CNC-Fertigung-Partner.pdf

## product files

Anlage 14 - Exemplarische Lernprogramme für das CNC-Operating.pdf

http://www.adam-europe.eu/prj/7025/prd/6/1/Anlage%2014%20-%20Exemplarische%20Lernprogramme%20f%C3%BCr%20das%20CNC-Operating.pdf

Anlage 26 - Arbeitsteilige Prozesse im CNC - Operating.pdf

http://www.adam-europe.eu/prj/7025/prd/6/1/Anlage%2026%20-%20Arbeitsteilige%20Prozesse%20im%20CNC%20-%20Operating.pdf

Arbeitsorganisation ital.pdf

http://www.adam-europe.eu/prj/7025/prd/6/1/Arbeitsorganisation%20ital.pdf

# Product 'Product 7th: Sector-oriented methodology for processing hand-outs for participants in additional / supplementary qualification courses'

Title: Product 7th: Sector-oriented methodology for processing hand-outs for participants in additional / supplementary qualification courses

Product Type: program or curricula

Marketing Text: methodology champagne orally orientated for the acquirement of helping hand for participants in addition-/ addition qualifications for the acquisition of on the individual qualification countable competences in the professional education's addition qualifications:
• Agreement of learning situations
• Internal evaluation of concrete learning situations of a CNC - Operating
• Virtual Reality based CNC - training system for great processing centres
• Credits

Description: By the project partnership a tabular overview of everyone is
the planning, execution and evaluation of Mobilitäten in the sector of required activities so to speak as a check list worked out and (nationally and internationally) introduced to current planning of addition-/ addition qualifications.
The champagne orally oriented methodology has been introduced by P0 on the occasion of the partner meeting in Braunau (OT); the wording of learning objectives for Mobilitäten and its planning have the project partner with this just got to work on methodology between the partners

Target group: Participants in additional / supplementary qualification courses for the acquisition of competences that might be recognised as individual qualification in the vocational training and supplementary qualification system.

Result: Operationalisation of preparation, execution and evaluation of additional / supplementary qualification courses
annex 23: Internal evaluation of concrete learning situations of a CNC - Operating
annex 24: Learning situation for a CNC - Operating
annex 29: Virtual Reality based CNC - training system for great processing centres
annex 30: Performance points
annex 31: Agreement of learning situations

Area of application: Preparation, execution and evaluation of additional / supplementary qualification courses

Homepage: www.cnc-eucam.de

Product Languages: English
German

## product files

Anlage 23 - Interne Evaluation konkreter Lernsituationen eines CNC-Operating.pdf

http://www.adam-europe.eu/prj/7025/prd/7/1/Anlage%2023%20-%20Interne%20Evaluation%20konkreter%20Lernsituationen%20eines%20CNC-Operating.pdf

Anlage 24 - Lernsituation für ein CNC-Operating.pdf

http://www.adam-europe.eu/prj/7025/prd/7/1/Anlage%2024%20-%20Lernsituation%20f%C3%BCr%20ein%20CNC-Operating.pdf

Anlage 29 - Virtual reality Schulungssystem.pdf

http://www.adam-europe.eu/prj/7025/prd/7/1/Anlage%2029%20-%20Virtual%20reality%20Schulungssystem.pdf

## product files

Anlage 30 - Leistungspunkte.pdf

http://www.adam-europe.eu/prj/7025/prd/7/1/Anlage%2030%20-%20Leistungspunkte.pdf

Anlage 31 - Vereinbarung von Lernsituationen in Mobilitätsmaßnahmen.pdf

http://www.adam-europe.eu/prj/7025/prd/7/1/Anlage%2031%20-%20Vereinbarung%20von%20Lernsituationen%20in%20Mobilit%C3%A4tsma%C3%9Fnahmen.pdf

# Product 'Product 8th: Implementation of the project results in valid educational regulations'

| | |
|---|---|
| Title: | Product 8th: Implementation of the project results in valid educational regulations |
| Product Type: | procedure for the analysis and prognosis of the vocational training requirement |
| Marketing Text: | The competence matrix and the competence standards allow the allocation of the required supplementary and additional qualification that may be acquired even in the framework of mobility measures as component of training and qualification measures for the staff of partners. These measures cover significant deficits in the competence acquisition of training and qualification measures of partner countries. According to partner P3 (IHK Magdeburg) it is possible in DE to agree on supplementary and additional qualification in the training contract in the sense of project results but independent of the respective RLP and ARP of the respective professions in the contents and chronology of vocational training. The participating training institutions are free to further test the project results in this supplementation of training and qualification courses in the public sector or under the governing public law. |
| Description: | It is difficult to sustainably improve regulations on training and qualification in the framework of LEONARDO innovation and transfer projects with two years of duration in a partnership like in the project. Attainable targets can be detected in due time and achieved result-oriented through opening of partnership with the networks of individual partners. The procedure described here contains:<br>• Formulation of competences and their standards<br>• Empiric evaluation of competences acquired in training and further qualification in partner countries<br>• Definition of "best practices" for possible supplementary and additional qualification in the partner countries<br>• Development of learning units for such supplementary and additional qualification even for modalities with a high level of confidence protection between sending institutions and host training institutions or countries |
| Target group: | Stakeholders for development, introduction and evaluation of regulations for training and qualification |
| Result: | Proposals for sustainable implementation of CNC-Operating in training and qualification in this field of activity<br>annex 27:  Implementation of the project results into national helping hands<br>annex 11: Labour organization CNC - production - partner (operational types - dt, Engl., pl, sk, ro. )<br>annex 11 a: Labour organization CNC - production - partner<br>(Beispielarbeitsplan.Legende glossary - dt, Engl., pl, sk, ro. ) |
| Area of application: | Planning, execution and evaluation of regulations for training and qualification, mainly in this field of activity that is of interest in this case. |
| Homepage: | www.cnc-eucam.eu |
| Product Languages: | German<br>Romanian<br>Slovak<br>English<br>Polish<br>Italian |

## product files

## product files

Anlage 11a - Arbeitsorganisationen CNC-Fertigung-Partner.pdf

http://www.adam-europe.eu/prj/7025/prd/8/1/Anlage%2011a%20-%20Arbeitsorganisationen%20CNC-Fertigung-Partner.pdf

Anlage 11a ital.pdf

http://www.adam-europe.eu/prj/7025/prd/8/1/Anlage%2011a%20ital.pdf

Anlage 11-Arbeitsorganisationen CNC-Fertigung-Partner.pdf

http://www.adam-europe.eu/prj/7025/prd/8/1/Anlage%2011-Arbeitsorganisationen%20CNC-Fertigung-Partner.pdf

Anlage 27 - Implementierung der Projektergebnisse in nationale Regelungen.pdf

http://www.adam-europe.eu/prj/7025/prd/8/1/Anlage%2027%20-%20Implementierung%20der%20Projektergebnisse%20in%20nationale%20Regelungen.pdf

Arbeitsorganisation ital.pdf

http://www.adam-europe.eu/prj/7025/prd/8/1/Arbeitsorganisation%20ital.pdf

# Product 'Product 9th: External evaluation (Guidance materialfor new approaches and methodologies (PR15))'

| | |
|---|---|
| Title: | Product 9th: External evaluation (Guidance materialfor new approaches and methodologies (PR15)) |
| Product Type: | program or curricula |
| Marketing Text: | Project aims have the project partner, between and final results publicly discusses early. Project aims, and final results have been announced on the web site project of their own, www.cnc-eucam.de, and the database of European projects of learning www.adam-europe.eu lifelongly between.<br>Furthermore external expertise was tied into the project report from the university in Magdeburg.<br>With members of the European association of professional training providers (EVBB) the contact was, established discuss and spread project aims and results about this network early. |
| Description: | With the University of Magdeburg external special competence was bound in the context of scientific cooperation; particularly the methods of the work process-related competence description were discussed in the project partnership and implemented into the project report here.<br>An acceptance of the project report and his could generally here<br>results are stated. The external evaluation of the applied methods for the inquiry and assessment of competence profiles and P10 led standards to common project applications of the partners P0, P1, P9, with the University of Magdeburg.<br>The indications from the reports for the interim report were evaluated in the meetings and fine tunings of the project report arising from it were carried out.<br>In the result of the external evaluation the idea of not realizing the knowledge won here only in the commercial technical education and further education bornly, in the context of an academic additional education tackled by botty but she has to be offered by executives together with P4 for the training early, too |
| Target group: | Project consortium and interested companies |
| Result: | Preparation of CNC compound training in Slovakia (Partner P6)<br>Preparation and filing of applications for research and development projects with the partners P0, P1, P4, P9, P10<br>Orientation to ergonomically-based consideration of the activity field of CNC-Operating in its entirety (in cooperation with Otto-von Guericke-Universität Magdeburg (see further Annex 16 "Expertise..." together with the enclosed files)<br>annex 28: Dissimination and sustainability<br>annex 16: Expertise OvGU - competences in operational studying places<br>annex 25:  Cyber physical production of large plants<br>annex 25 a:  ZIM - project application modulo (aims. ) |
| Area of application: | Future projects of LLL in the field of activity |
| Homepage: | www.cnc-eucam.eu |
| Product Languages: | German |

## product files

Anlage 16 - Expertise OvGU - Kompetenzen in betrieblichen Lernorten.pdf

http://www.adam-europe.eu/prj/7025/prd/9/1/Anlage%2016%20-%20Expertise%20OvGU%20-%20Kompetenzen%20in%20betrieblichen%20Lernorten.pdf

## product files

Anlage 25a - ZIM - Projektantrag MODULO (Ziele).pdf

http://www.adam-europe.eu/prj/7025/prd/9/1/Anlage%2025a%20-%20ZIM%20-%20Projektantrag%20MODULO%20%28Ziele%29.pdf

Anlage 25 - Cyber-physische Produktion von Großanlagen.pdf

http://www.adam-europe.eu/prj/7025/prd/9/1/Anlage%2025%20-%20Cyber-physische%20Produktion%20von%20Gro%C3%9Fanlagen.pdf

Anlage 28 - Dissimination und Nachhaltigkeit.pdf

http://www.adam-europe.eu/prj/7025/prd/9/1/Anlage%2028%20-%20Dissimination%20und%20Nachhaltigkeit.pdf

# Events

## Abschlussmeeting

| | |
|---|---|
| Date | 23.10.2012 |
| Description | |
| Target audience | |
| Public | Closed event |
| Contact Information | |
| Time and place | |

## Erprobung von Projektergebnissen durch AZUBI bei BFI

| | |
|---|---|
| Date | 10.09.2012 |
| Description | |
| Target audience | |
| Public | Event is open to the public |
| Contact Information | |
| Time and place | |

## Partnermeeting bei BFI Oberösterreich

| | |
|---|---|
| Date | 12.06.2012 |
| Description | |
| Target audience | |
| Public | Closed event |
| Contact Information | |
| Time and place | |

# Events

## Interim-Meeting zur Struktur eines CNC-Simulators

| | |
|---|---|
| Date | 13.02.2012 |
| Description | |
| Target audience | |
| Public | Closed event |
| Contact Information | |
| Time and place | |

## Partnermeeting

| | |
|---|---|
| Date | 15.09.2011 |
| Description | |
| Target audience | |
| Public | Event is open to the public |
| Contact Information | |
| Time and place | |

## Interim-Meeting zum Arbeitsstand

| | |
|---|---|
| Date | 16.06.2011 |
| Description | |
| Target audience | |
| Public | Closed event |
| Contact Information | |
| Time and place | |

# Events

## externe Evaluation von Projektaktivitäten

| | |
|---|---|
| Date | 20.04.2011 |
| Description | |
| Target audience | |
| Public | Closed event |
| Contact Information | |
| Time and place | |

## VR-Darstellung von CNC-Maschinen

| | |
|---|---|
| Date | 14.04.2011 |
| Description | |
| Target audience | |
| Public | Closed event |
| Contact Information | |
| Time and place | |

## Interim-Meeting

| | |
|---|---|
| Date | 15.01.2011 |
| Description | Beratung der Steering-Group (P0, P1, P2) zur CNC – Tätigkeitsliste |
| Target audience | CNC- Fachleute |
| Public | Closed event |
| Contact Information | projektkoordinator |
| Time and place | 15-01-2011 in Magdeburg |

# Events

## Kick-Off-Meeting

| | |
|---|---|
| Date | 10.11.2010 |
| Description | Welcome and presentation of EBG<br>Welcome and short presentation / introduction of partners<br>Aims and objectives of the project, work packages<br>Questions, discussion, clarification<br>Visit of the Virtuel Reality Centre of Fraunhofer Institute in Magdeburg<br>Visit of the CNC - Training Centre of EBG in Magdeburg<br>Administrative and financial part ( |
| Target audience | Partnerorganisationen und Gäste |
| Public | Closed event |
| Contact Information | Europäisches Bildungswerk für Beruf und Gesellschaft gGmbH<br>Hegelstraße 2<br>D – 39104 Magdeburg<br>Tel: 0049 (0) 391 541 94 77<br>www.ebg.de<br>f.schmidt@ebg.de<br>s.karbe@ebg.de<br>Geschaeftsfuehrung@ebg.de |
| Time and place | 10. / 11. November 2010<br>Magdeburg |