

Reinforcing Non-University Sector at the Tertiary Level in Engineering and Technology to Support Thailand Sustainable Smart Industry



Workpackage Quarterly Report

| Title and reference number of the workpackage (WP) | WP1- Non-University Capacity Assessment | |
|--|---|------------------------------------|
| WPL: Rui Lima (UMinho) | Co-WPL: Athakorn Kengpol (KMUTNB) | Reporting period: January 31, 2023 |

Indicators of achievement and or/performance as indicated in the project proposal

- The capacity assessment execution plan is ready by M1
- The capacity assessment form is available by M2
- The assessment results are available by M6
- Recommendations are available by M6

Status of Deliverables*

| Deliver | Deliverable Title | | | Statu | s (Y/N/NA) | | |
|---------|--|-----------|-----------|--------------------|----------------|---------------|---------------------|
| able No | | Preparing | Executing | Execution complete | Report to QCMB | Report to PEC | Officially Complete |
| Dev 1.1 | A capacity assessment execution plan | Υ | Υ | Y | Y | Υ | Y |
| Dev 1.2 | A capacity assessment form | Υ | Υ | Y | N/A | N/A | Y |
| Dev 1.3 | An assessment report on non-university capacity, including recommendations emphasis areas for the Industry 4.0 competence development training program | Υ | Y | Y | Y | Υ | Y |

^{*}Please list all deliverables of the WP.



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Activities carried out to date to achieve this result:

| Task No | Task Title | Start date | End date** | Place/ Partners involved | | Description of the activity carried out | Specific and measurable indicators of achievement |
|----------|---|----------------|-----------------|--------------------------------|---|--|--|
| Task 1.1 | Developing a capacity assessment execution plan | Feb 1, 2021 | Aug 3, 2021 | All partners | • | Explored the knowledge needed for the assessment form. Developed a capacity assessment execution plan. Reviewed and approved the plan by WP1 team Submitted the plan to QCMB for approval Revised the plan Resubmitted the plan to QCMB for approval Submitted the plan to PEC for approval | Official capacity assessment execution plan https://bit.ly/3FIRcOw |
| Task 1.2 | Designing capacity assessment | Mar 1, 2021 | June 1, 2021 | All partners | • | Analysed knowledge areas and sources required for the assessment form. Developed items for the questionnaire. Reviewed and approved the questionnaire's items by WP1 team. Developed a think-aloud procedure with 6 Thai teachers to improve understanding of the questionnaire. Improved the questionnaire. | An official questionnaire for the capacity assessment available in a Google forms. https://bit.ly/3TYyao3 |

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| | | | | | • | Tested and retested to validate the questionnaire with 43 participants Reviewed the results Adjusted the questionnaire Obtained the final version of the questionnaire for the capacity assessment available in a Google forms. | | |
|----------|--|-----------------|---------------------|-----------------------------------|---|---|---|---|
| Task 1.3 | Conducting non-university capacity assessment | June 1, 2021 | June 30, 2021 | Thai partners and UMinho | • | Sent out the invitation to the target groups to participate on the survey. Monitored the number of responses and took action to ensure the number was reached. | • | The survey results from 200 participants |
| Task 1.4 | Summarize, interpret results and recommendations | July 1, 2021 | Jan 20, 2022 | All partners | • | Analyzed the data. Developed the final report with a summary and interpretation of the results, and recommendations. Reviewed the report internally among the WP1 members. | • | An official non-university capacity assessment report https://bit.ly/3qrY31V |

^{**} if it is still ongoing, please put "-".

Activities to be carried out to achieve this outcome (before the end of the project)

| Task No | Task Title | Start date | End date# | Place/ Partners involved | Description of the activity carried out | Specific and measurable indicators of achievement |
|---------|------------|---------------|--------------|--------------------------------|---|---|
| | | | | | | |

according to the proposal



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Corrective Actions **

| Task No | Task Title | Start date | End date* | Place/ Partners involved | Description of the activity carried out | Specific and measurable indicators of achievement |
|---------|------------|---------------|--------------|--------------------------------|---|---|
| | | | | | | |
| | | | | | | |

^{**}Only when corrective actions are needed.

Changes that have occurred in this result since the original proposal:

The project was kicked-off in Feb 2021.

The workplan was revised one time in Feb 2021.

Tasks 1.1 to 1.3 were executed according to the plan.

Additional time was needed to ensure the quality of the analysis of the results.

Consequently, an official report on the capacity assessment is expected to be delayed by a couple months.

The WP1 team approved the final result in the beginning of October, and we initiated the preparation of the process for evaluation of the final deliverable by QCMB and after that by PEC.



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| Title and reference number of the workpackage (WP) | WP2- Sustainable Development of Industry 4.0 Competence Development Training Program | | | | |
|--|--|------------------------------------|--|--|--|
| WPL: Pisut Koomsap (AIT) | Co-WPL: Cathal de Paor (MIC) | Reporting period: January 31, 2023 | | | |

| Indicators of achievement and |
|------------------------------------|
| or/performance as indicated in the |
| project proposal |

- Approval of an Industry 4.0 Competence Development Training Program by PEC by M7
- 10 modules complete with innovative training materials are ready by M9
- A capacity training assessment form is approved by WP2 members by M3
- Completion of training sessions for the 12 Thai trainers by M29
- Completion of coaching sessions for the 12 Thai trainers by M30
- An assessment report by M31
- An Innovative Teaching and Learning Center for Thailand Sustainable Smart Industry

Status of Deliverables*

| Deliver | Deliverable Title | Status (Y/N/NA) | | | | | | |
|---------|--|-----------------|-----------|---------------------------|----------------|---------------|---------------------|--|
| able No | | Preparing | Executing | Execution complete | Report to QCMB | Report to PEC | Officially Complete | |
| Dev 2.1 | An Industry 4.0 Competence Development Training Program | Υ | Υ | N | Υ | Y | N | |
| Dev 2.2 | Innovative training materials for 10 modules | Υ | Υ | N | Υ | Υ | N | |
| Dev 2.3 | A capacity training assessment form | Υ | Υ | N | Υ | Υ | N | |
| Dev 2.4 | 12 Thai trainers trained in program design (for higher education | Y | Y | N | N/A | N/A | N | |



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| | contexts), and in the use of innovative learner-centered teaching and assessment methods | | | | | | |
|---------|--|---|---|---|---|---|---|
| Dev 2.5 | An assessment report of the Thai trainer's competence in the use of knowledge and skills gained in higher education teaching | N | N | N | N | N | N |
| Dev 2.6 | An Innovative Teaching and Learning Center for Thailand Sustainable Smart Industry | N | N | N | N | N | N |

^{*}Please list all deliverables of the WP.

Activities carried out to date to achieve this result:

| Task No | Task Title | Start | End | Place/ | Place/ Description of the activity carried out | | | Specific and measurable indicators of |
|----------|---------------------------|-------|--------|-----------|--|---|---|---------------------------------------|
| | | date | date** | Partners | | | | achievement |
| | | | | involved | | | | |
| Task 2.1 | Designing an Industry 4.0 | Feb | - | AIT, KKU, | • | Prepared for the development of the | • | Overview page on the Industry 4.0 |
| | Competence | 10, | | MIC,UPB | | Industry 4.0 Competence Development | | Competence Development Training |
| | Development Training | 2021 | | and | | Training Program | | Program |
| | Program | | | UMinho | • | Identified the experts who will develop | | https://bit.ly/3xa1rCv |
| | | | | | | and offer the 10 training modules | | |
| | | | | | • | Developed a template for the | • | Presentation material on the concept |
| | | | | | | development plan of the 10 training | | of the Industry 4.0 Competence |
| | | | | | | modules | | Development Training Program |
| | | | | | | | | https://bit.ly/3U0efFj |





| Conducted a meeting with the experts | |
|--|---|
| on how to use the template for the module development plan Developed a template for a syllabus | A list of the experts https://bit.ly/3QOpk9P |
| Completed the module development plans for 9 modules Learning Experience-Focused Course Design and Development (Module 1) Communication and People Skills Development (Module 2) Innovative Teaching and Learning Methods (Module 3) Project-Based and Problem-Based Learning (Module 4) Coaching and Mentoring (Module 5) Applications of Optimization and Technology in Value Chain (Module 7) Digital Manufacturing (Module 8) Innovative Product Design and Development (Module 9) Data Analytics (Module 10) | 9 syllabuses completed Document uploaded on the internal website for assessment for QCMB and PEC approval https://bit.ly/3MRoyHb (Permission is required to access the member space) Official syllabuses and training activities plan uploaded in WP2 section on the member space and internal website for the following approved modules (https://bit.ly/3KOI45Y) Communication and People Skills Development (Module 2) Syllabus https://bit.ly/3BG2qgx |
| Developing the module development plans for Industrial Management in Industry 4.0 Era (Module 6) Completed the syllabuses for 9 modules | Activities Plan https://bit.ly/3TTaQle Innovative Teaching and Learning |





| | |
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| Learning Experience-Focused Course Parison and Development (Madville 1) | https://bit.ly/3d7Gf9l |
| Design and Development (Module 1) Communication and People Skills Development (Module 2) Innovative Teaching and Learning Methods (Module 3) | Activities Plan https://bit.ly/3xeVswc • Coaching and Mentoring (Module |
| Project-Based and Problem-Based Learning (Module 4) Coashing and Montoring (Module 5) | 5) Syllabus https://bit.ly/3XKKzwq |
| Coaching and Mentoring (Module 5) Applications of Optimization and Technology in Value Chain (Module 7) | Activities Plan https://bit.ly/3Z06mRX |
| Digital Manufacturing (Module 8) Innovative Product Design and Development (Module 9) Data Analytics (Module 10) | Applications of Optimization and Technology in Value Chain (Module 7) Syllabus |
| Completed training activities plan for 8 modules Communication and People Skills | https://bit.ly/3RMN27i Activities Plan |
| Development (Module 2) Innovative Teaching and Learning Methods (Module 3) Project-Based and Problem-Based Learning (Module 4) | https://bit.ly/3U0icK9 Digital Manufacturing (Module 8) Syllabus https://bit.ly/3k6ejpN |
| Coaching and Mentoring (Module 5) Applications of Optimization and Technology in Value Chain (Module 7) | Activities Plan https://bit.ly/3IMEClx |

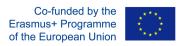




| Digital Manufacturing (Module 8) Innovative Product Design and Development (Module 9) Data Analytics (Module 10) Submitted document to QCMB for review and approval for 8 modules Communication and People Skills Development (Module 2) | Innovative Product Design and Development (Module 9) Syllabus https://bit.ly/3LjU6Gt Activities Plan https://bit.ly/3d2Y5dw Data Analytics (Module 10) Syllabus |
|---|--|
| · · · · · · · · · · · · · · · · · · · | Data Analytics (Module 10) Syllabus https://bit.ly/3d7d06C Activities Plan https://bit.ly/3BvrtCx |
| Innovative Product Design and Development (Module 9) Data Analytics (Module 10) Submitted document to PEC for review and approval for 7 modules Communication and People Skills Development (Module 2) Innovative Teaching and Learning Methods (Module 3) Coaching and Mentoring (Module 5) | |

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| | | | Applications of Optimization and Technology in Value Chain (Module 7) Digital Manufacturing (Module 8) Innovative Product Design and Development (Module 9) Data Analytics (Module 10) |
|---------|--|----------------|---|
| Task 2. | Developing innovative training materials | Apr - 27, 2021 | AIT, KKU, MIC Completed training materials for 8 modules Communication and People Skills Development (Module 2) Innovative Teaching and Learning Methods (Module 3) Project-Based and Problem-Based Learning (Module 4) Coaching and Mentoring (Module 5) Applications of Optimization and Technology in Value Chain (Module 7) Digital Manufacturing (Module 8) Innovative Product Design and Development (Module 9) Data Analytics (Module 10) Submitted document to QCMB for review and approval for 8 modules Communication and People Skills https://bit.ly/3QHWt72 Document uploaded on the member space for assessment for QCMB and PEC approval https://bit.ly/3MRoyHb (Permission is required to access the member space) Official course material uploaded in WP2 section on the member space and internal website for the following approved modules (https://bit.ly/3KOl45Y) Submitted document to QCMB for review and approval for 8 modules |

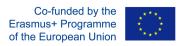




| Development (Module 9) • Data Analytics (Module 10) | | Communication and People Skills Development (Module 2) Innovative Teaching and Learning Methods (Module 3) Project-Based and Problem-Based Learning (Module 4) Coaching and Mentoring (Module 5) Applications of Optimization and Technology in Value Chain (Module 7) Digital Manufacturing (Module 8) Innovative Product Design and Development (Module 9) Data Analytics (Module 10) Submitted document PEC for review and approval for 7 modules Communication and People Skills Development (Module 2) Innovative Teaching and Learning Methods (Module 3) Coaching and Mentoring (Module 5) Applications of Optimization and Technology in Value Chain (Module 7) Digital Manufacturing (Module 8) Innovative Product Design and Development (Module 9) | Innovative Teaching and Learning Methods (Module 3) https://bit.ly/3eGHPiJ Coaching and Mentoring (Module 5) https://bit.ly/3xvSByz Applications of Optimization and Technology in Value Chain (Module 7) https://bit.ly/3TXo9HI Digital Manufacturing (Module 8) https://bit.ly/3Edn6NF Innovative Product Design and Development (Module 9) https://bit.ly/3L2NtrL Data Analytics (Module 10) https://bit.ly/3Bwcdpf |
|--|--|--|---|
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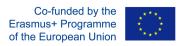
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| T | ask 2.3 | Developing a capacity training assessment | Feb - 10, 2021 | AIT, KKU, MIC, UPB and UMinho | Developing training materials for Learning Experience-Focused Course Design and Development (Module 1) Developed a capacity training assessment system Completed assessment forms for 9 modules Learning Experience-Focused Course Design and Development (Module 1) Communication and People Skills Development (Module 2) Innovative Teaching and Learning Methods (Module 3) Project-Based and Problem-Based Learning (Module 4) Coaching and Mentoring (Module 5) Applications of Optimization and Technology in Value Chain (Module 7) Digital Manufacturing (Module 8) Innovative Product Design and Development (Module 9) | Status report page on the assessment forms https://bit.ly/3qqvcey Capacity training assessment form 9 capacity training assessment forms for 9 modules Document uploaded on the internal website for assessment for QCMB and PEC approval https://bit.ly/3MRoyHb (Permission is required to access the member space) Official Capacity training assessment form uploaded in WP2 section on the member space and internal website for the following assessment website for the following assessment assessment website for the following assessment assessment website for the following assessment assessment website for the following assessment assessment assessment assessment assessment assessment form uploaded in the following assessment assessment assessment form uploaded in the following assessment form uplo |
|---|---------|---|----------------|--|--|---|
| | | | | | Innovative Product Design and Development (Module 9) Data Analytics (Module 10) | assessment form uploaded in WP2 section on the member space and internal website for the following approved modules (https://bit.ly/3KOI45Y) |
| | | | | | Developing assessment form for Industrial Management in Industry 4.0 Era (Module 6) | Communication and People Skills Development (Module 2) https://bit.ly/3RX4lma |

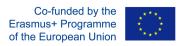




| | Submitted document to QCMB for review and approval for 8 modules Communication and People Skills Development (Module 2) Innovative Teaching and Learning Methods (Module 3) Project-Based and Problem-Based Learning (Module 4) Coaching and Mentoring (Module 5) Applications of Optimization and Technology in Value Chain (Module 7) Digital Manufacturing (Module 8) Innovative Product Design and Development (Module 9) Data Analytics (Module 10) Submitted document PEC for review and approval for 7 modules Communication and People Skills Development (Module 2) Innovative Teaching and Learning Methods (Module 3) Coaching and Mentoring (Module 5) Applications of Optimization and Technology in Value Chain (Module 7) | Innovative Teaching and Learning Methods (Module 3) https://bit.ly/3Dlu8Ap Coaching and Mentoring (Module 5) https://bit.ly/3YYIZs2 Applications of Optimization and Technology in Value Chain (Module 7) https://bit.ly/3DgStau Digital Manufacturing (Module 8) https://bit.ly/3lwz6w6 Innovative Product Design and Development (Module 9) https://bit.ly/3RT42bL Data Analytics (Module 10) https://bit.ly/3RX9Bpx |
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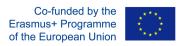
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| Task 2.4 | Training the Thai trainers | Feb 17, 2021 | - AIT, KMUTNB, KKU,MU, PSU, MIC and UMinho | Digital Manufacturing (Module 8) Innovative Product Design and Development (Module 9) Data Analytics (Module 10) Identified the 12 Thai trainers Had a meeting with Thai trainers to explain train the trainer program Updated the list of 12 Thai trainers Trained the trainers on Communication and People Skills Development (Module 2) Innovative Teaching and Learning Methods (Module 3) Project-Based and Problem-Based Learning (Module 4) Coaching and Mentoring (Module 5) Digital Manufacturing (Module 8) Data Analytics (Module 10) | Status report page on Train the Trainer Program https://bit.ly/3qrpfOz A updated list of the Thai trainers https://bit.ly/3L8Iq99 Understanding of Thai trainers or their roles and expectation Training completed for Communication and People Skills Development (Module 2) Innovative Teaching and Learning Methods (Module 3) Project-Based and Problem-Based Learning (Module 4) Coaching and Mentoring (Module 5) Digital Manufacturing (Module 8) Data Analytics (Module 10) |
|----------|----------------------------|--------------------|--|--|--|
| | | | | | Data Analytics (Module 10) Status of the Train the Trainer Program |

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| | | | | | https://bit.ly/3samMJx Note: the two trainings in Jan 2022 were postponed due to the emergence of Omicron at the end of December Links to see the ambiance during the training and coaching sessions are available in the status report page. |
|--------|------------------------------|---------------|---------------------------------------|---|---|
| Task 2 | 5 Coaching the Thai trainers | Feb 20, 22 | AIT, KMUTNB, KKU,MU, and PSU | Completed Coaching for 3 modules Communication and People Skills Development (Module 2) Innovative Teaching and Learning Methods (Module 3) Data Analytics (Module 10) Online coaching for 4 modules Innovative Teaching and Learning Methods (Module 3) Project-Based and Problem-Based Learning (Module 4) Coaching and Mentoring (Module 5) Data Analytics (Module 10) Onsite coaching sessions for 4 modules | Completed coaching activities for Communication and People Skills Development (Module 2) Innovative Teaching and Learning Methods (Module 3) Data Analytics (Module 10) Ongoing coaching activities for Project-Based and Problem-Based Learning (Module 4) Coaching and Mentoring (Module 5) Teams of four trainers for all 6 modules https://bit.ly/3xa1rCv |

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| | | Communication and People Skills Development (Module 2) at Mahidol Innovative Teaching and Learning | |
|----------|--|--|--|
| | | Methods (Module 3) at MIC Project-Based and Problem-Based Learning (Module 4) at KMUTNB Coaching and Mentoring (Module 5) at PSU | |
| | | Selected teams of four trainers for all 6 modules Online coaching schedule for Digital Manufacturing (Module 8) at the end of | |
| Task 2.7 | AIT, KKU, | February 2023 Set up Active Learning Classrooms for | Active Learning Classrooms have been |
| | MU, PSU and Lampang Rajabhat University (Associated Partner) | training activities A center will be located at AIT | set up and used for training https://bit.ly/3L8EqWq |

^{**} if it is still ongoing, please put "-".

Activities to be carried out to achieve this outcome (before the end of the project)





| Task No | Task Title | Start date | End date# | Place/ Partners involved | | Description of the activity carried out | | Specific and measurable indicators of achievement |
|----------|---|---------------|--------------|---|---|---|---|---|
| Task 2.1 | Designing an Industry 4.0 Competence Development Training Program | Feb 21 | Aug 21 | AIT, KKU, MIC, UPB, and UMinho | • | Complete the module development plans for Industrial Management in Industry 4.0 Era (Module 6) Complete the syllabuses for Industrial Management in Industry 4.0 Era (Module 6) Complete the activities plans for Learning Experience-Focused Course Design and Development (Module 1) Industrial Management in Industry 4.0 Era (Module 6) | • | An official curriculum of an Industry 4.0 Competence Development Training Program |
| Task 2.2 | Developing innovative training materials | Apr 21 | Dec 21 | AIT, KKU, MIC, UPB, and UMinho | • | Submit the curriculum to QCMB and PEC Complete the training materials for Learning Experience-Focused Course Design and Development (Module 1) Project-Based and Problem-Based Learning (Module 4) Industrial Management in Industry 4.0 Era (Module 6) Submit the materials to QCMB and PEC | • | Official training materials for the 10 modules |



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| Task 2.3 | Developing a capacity training assessment | Feb 21 | Apr 21 | UPB and UMinho | • | Complete the assessment form for Industrial Management in Industry 4.0 Era (Module 6) | • | A capacity training assessment form |
|----------|---|--------|-----------|-------------------|---|---|---|--|
| Task 2.4 | Training the Thai trainers | Feb 21 | Mar 23 | All partners | • | Submit the forms to QCMB and PEC Train 12 Thai trainers by EU partners on Industrial Management in Industry 4.0 Era (Module 6) | • | Completion of training sessions |
| Task 2.5 | Coaching the Thai trainers | Jun 21 | May 23 | All partners | • | Finish coaching 12 Thai trainers for Innovative Teaching and Learning Methods (Module 3) Project-Based and Problem-Based Learning (Module 4) Coaching and Mentoring (Module 5) Industrial Management in Industry 4.0 Era (Module 6) Digital Manufacturing (Module 8) Data Analytics (Module 10) | • | Completion of coaching sessions |
| Task 2.6 | Assessing the Thai trainers | Jul 21 | Jun 23 | All partners | • | Assess the performance of the 12 Thai trainers | • | An assessment report on the performance of the 12 Thai trainers |
| Task 2.7 | Setting up an Innovative Teaching and Learning Center for Thailand Sustainable Smart Industry | Nov 22 | Jun 23 | All partners | • | Establish the center | • | an Innovative Teaching and Learning Center for Thailand Sustainable Smart Industry |

according to the proposal



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Corrective Actions **

| Task No | Task Title | Start date | End date* | Place/ Partners involved | Description of the activity carried out | Specific and measurable indicators of achievement |
|----------|------------|---------------|--------------|--------------------------------|---|---|
| Task x.x | | | | | • | |
| | | | | | | |

^{**}Only when corrective actions are needed.

Changes that have occurred in this result since the original proposal:

- A plan has been revised one time in Feb 21.
- Since the module developers could not completed the tasks at the same time due to their contraints and other obligations during the pandemic, we have decided to proceed by module instead. The module having completed documents for Task 2.1-2.3 are submitted to QCMB and PEC for review and approval.



Reinforcing Non-University Sector at the Tertiary Level in Engineering and Technology to Support Thailand Sustainable Smart Industry



| Title and reference number of the workpackage (WP) | WP3-Capacity training for non-university sector at tertiary level in Thailand | | | | | |
|--|---|------------------------------------|--|--|--|--|
| WPL: Thanate Ratanawilai (PSU) | Co-WPL: Kanchaha Sethanan (KKU) | Reporting period: January 31, 2023 | | | | |

| Indicators of | achievement and |
|---------------|-------------------------|
| or/performa | nce as indicated in the |
| project propo | osal |

- The capacity training execution plan is ready by M4
- Completion of the capacity training sessions by M31
- Completion of the capacity coaching sessions by M33
- An assessment report on the trained capacity by M35

Status of Deliverables*

| Deliver | Deliverable Title | Status (Y/N/NA) | | | | | | | | | | |
|---------|---|-----------------|-----------|--------------------|----------------|---------------|---------------------|--|--|--|--|--|
| able No | | Preparing | Executing | Execution complete | Report to QCMB | Report to PEC | Officially Complete | | | | | |
| Dev 3.1 | A capacity training execution plan | Υ | Υ | N | Υ | N | N | | | | | |
| Dev 3.2 | 60 trained teaching staff from non-university sector at tertiary level | Y | Υ | N | N/A | N/A | N | | | | | |
| Dev 3.3 | An assessment report of trained teaching staff from non-university sector at tertiary level | Y | Y | N | N | N | N | | | | | |

^{*}Please list all deliverables of the WP.

Activities carried out to date to achieve this result:





| Task No | Task Title | Start date | End date** | Place/ Partners involved | | Description of the activity carried out | : | Specific and measurable indicators of achievement |
|----------|---|---------------|---------------|---------------------------------------|---|---|---|---|
| Task 3.1 | Developing capacity training execution plan | Feb 21 | - | AIT, KMUTNB, KKU, MU and PSU | • | Obtained an initial registration list of trainees and their interested modules from WP5 Checked availability of registered trainees in the Southern region (the largest group according to the list) for attending the first module Explained about the training program to prospective trainees in the Central, Eastern, and Western region in the online information session Explained about the training program to prospective trainees in the Southern region in the online information session Scheduled training for Central region for 5 modules Communication and People Skills Development (Module 2) Innovative Teaching and Learning Methods (Module 3) | • | A tentative list of trainees and their interested modules Training activities scheduled for December 2021 and January 2022 (Note: the activities for January have been postponed due to the emergence of Omicron at the end of December 2021) 7 training activities scheduled for Central region • Module 2 on 13-15 December 2021* • Module 2 on 11-13 March 2022 • Module 2 on 19-21 January 2023** • Module 2 on 26-28 January 2023** • Module 7 on 18-20 March 2022 • Module 9 on 20-22 December 2022* • Module 9 on 25-27 February 2022 *Rambhai Barni Rajabhat University ** Silapakorn University |





| Applications of Optimization and Technology in Value Chain (Module 7) Innovative Product Design and Development (Module 9) Data Analytics (Module 10) Scheduled training for Southern region for 5 modules Communication and People Skills Development (Module 2) Innovative Teaching and Learning Methods (Module 3) Applications of Optimization and Technology in Value Chain (Module 7) Innovative Product Design and Development (Module 9) Data Analytics (Module 10) Scheduled training program for Northern region for 4 modules | Training activities scheduled for Southern region of Module 2 on 18-20 March 2022 Module 3 on 27-29 March 2023 Module 7 on 2-4 May 2022 (Note: Module 7 was scheduled on 25-27 March 2022 but the activity has been postponed due to the emergence of Omicron) Module 9 on 1-3 April 2022 Module 9 on 19-21 November 2022*** Module 10 on 9-11 November 2022 *** Surat Thani Rajabhat University Training activities scheduled for Northern region of Module 2 on 17-19 June 2022 Module 7 on 22-24 July 2022 Module 9 on 6-8 May 2022 Module 10 on 25-27 November |
|---|--|
| Development (Module 9) • Data Analytics (Module 10) | Northern region of Module 2 on 17-19 June 2022 Module 7 on 22-24 July 2022 |
| region for 4 modules Communication and People Skills Development (Module 2) Applications of Optimization and Technology in Value Chain (Module | Module 10 on 25-27 November 2022 Training activities scheduled for Northeastern region of Module 2 on 12-14 December |
| 7) • Innovative Product Design and Development (Module 9) | 2022# • Module 2 on 23-25 February 2023## |





| Data Analytics (Module 10) Scheduled training program for Northeastern region for 4 modules Communication and People Skills Development (Module 2) Applications of Optimization and Technology in Value Chain (Module 7) Innovative Product Design and Development (Module 9) Data Analytics (Module 10) Submitted the 1st draft of Deliverable 3.1 report to QCMB Held online meetings with Thai trainers of Innovative Teaching and Learning Methods (Module 3) and Data Analytics (Module 10) Visited Faculty of Industrial Technology, Songkhla Rajabhat University to promote two uncoming modules: Innovative | Module 7 on 14-16 November 2022 Module 9 on 30 November – 2 December 2022 Module 10 on 18-20 January 2023# * Chaiyaphum Rajabhat University *** Kalasin University A tentative capacity training execution plan including a progress of the training activities Organized and assigned Thai trainers to each training center for modules 3 and 10 training activities and set the tentative training schedule 14 tentative trainees are expected to attend both modules at PSU training center |
|---|---|
| Visited Faculty of Industrial Technology, | center |





| | | | | Revised the 2 nd draft of Deliverable 3.1 report to QCMB |
|----------|---|--------|---------------------------------------|---|
| Task 3.2 | Conducting capacity training on Industry 4.0 competence development | Apr 21 | AIT, KMUTNB, KKU, MU and PSU | Preparing for offering the first module in the South Preparing for offering the first module in the Central Conducted 2 capacity training sessions in Decembers 2021 at Rambhai Barni Rajabhat University for a subgroup of Central region on Communication and People Skills Development (Module 2) Innovative Product Design and Development (Module 9) Communication and People Skills Development (Module 9) Conducted 3 capacity training sessions in February and March 2021 at Mahidol University for Central region on |





| Communication and People Skills | Training activities at KKU with the |
|--|-------------------------------------|
| Development (Module 2) | participants of 9 and 8 for |
| | Modules 7 and 9, respectively |
| Conducted 4 capacity training sessions in | Training activities at Chaiyaphum |
| March, April, May, and November 2022 | Rajabhat University with the |
| at Prince of Songkla University (PSU) for | participants of 13 and 13 for |
| Southern region on Communication and People Skills | Modules 2 and 10, respectively |
| Development (Module 2) | |
| Applications of Optimization and | The ambiance during the training |
| Technology in Value Chain (Module | can be seen by accessing from |
| 7) | the numbers on the report page. |
| Innovative Product Design and | |
| Development (Module 9) | |
| Data Analytics (Module 10) | |
| Conducted 1 capacity training sessions in | |
| November 2022 at Surat Thani Rajabhat | |
| University for a subgroup of Southern | |
| region on | |
| Innovative Product Design and | |
| Development (Module 9) | |
| Conducted 4 capacity training sessions in | |
| May, June, July, and November 2022 at | |
| Lampang Rajabhat University (LPRU) for | |
| Northern region on | |
| Communication and People Skills | |
| Development (Module 2) | |



Reinforcing Non-University Sector at the Tertiary Level in Engineering and Technology to Support Thailand Sustainable Smart Industry



| Applications of Optimization and Technology in Value Chain (Module 7) Innovative Product Design and Development (Module 9) Data Analytics (Module 10) Conducted 2 capacity training sessions in November 2022 at Khon Kaen University (KKU) for Northeastern region on Applications of Optimization and Technology in Value Chain (Module 7) Innovative Product Design and Development (Module 9) |
|--|
| Conducted 2 capacity training sessions in November 2022 at Chaiyaphum Rajabhat University for a subgroup of Northeastern region on Communication and People Skills Development (Module 2) Data Analytics (Module 10) |

^{**} if it is still ongoing, please put "-".

Activities to be carried out to achieve this outcome (before the end of the project)





| Task No | Task Title | Start date | End date# | Place/ Partners involved | | Description of the activity carried out | | Specific and measurable indicators of achievement |
|----------|---|---------------|--------------|--------------------------------|---|--|---|---|
| Task 3.1 | Developing capacity training execution plan | Feb 21 | July 21 | All partners | • | Obtain a complete registration list of trainees and their interested modules, registered for 4 regions of Thailand from WP5 Collect a name list of 12 Thai trainers for each module from WP2 Create tentative schedules for training and coaching of the 10 modules for the 4 regions to form a capacity training execution plan (CTEP) Revising the the CTEP for PEC approval | • | An official capacity training execution plan |
| Task 3.2 | Conducting capacity training on Industry 4.0 competence development | Apr 21 | Sept 23 | Thai partners | • | Prepare for the implementation of the training sessions of CTEP in all 4 regions Conduct the training sessions for teaching staffs of non-university sector at tertiary level Assess the trainees after the completion of each training module | • | Completion of capacity training sessions |
| Task 3.3 | Coaching trained capacity | July 21 | Oct 23 | Thai partners | • | Prepare for the implementation of the coaching sessions of CTEP in all 4 regions Conduct the coaching sessions for teaching staffs of non-university sector at tertiary level Assess the trainees after the completion of each coaching module | • | Completion of coaching sessions |

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| Task 3.4 | Assessing trained capacity | July 21 | Oct 23 | EU partners | • | Monitor the training and coaching | • | An assessment report on the |
|----------|----------------------------|---------|--------|-------------|---|---------------------------------------|---|-------------------------------------|
| | | | | and AIT | | activities | | performance of the trained teaching |
| | | | | | • | Assess the overall performance of the | | staff from non-university sector |
| | | | | | | trainees after the completion of | | |
| | | | | | | coaching sessions | | |

according to the proposal

Corrective Actions **

| Task No | Task Title | Start date | End date* | Place/ Partners involved | Description of the activity carried out | Specific and measurable indicators of achievement |
|---------|------------|---------------|--------------|--------------------------------|---|---|
| | | | | | | |
| | | | | | | |

^{**}Only when corrective actions are needed.

Changes that have occurred in this result since the original proposal:

- A plan has been revised one time in March 21.
- Scheduling training during the pandemic has been a challenge as it has been depended upon the situation and the availability of the trainees.
- The training has mostly conducted during Friday to Sunday on the weeks that most of them were available.
- There was also a case that some registrants confirmed to attend but could not because of testing positive.







Reinforcing Non-University Sector at the Tertiary Level in Engineering and Technology to Support Thailand Sustainable Smart Industry



| Title and reference number of the workpackage (WP) | WP4- Quality Monitoring and Control | | | |
|--|-------------------------------------|------------------------------------|--|--|
| WPL: Andrei Szuder (UPB) | Co-WPL: Danaipong Chetchotsak (KKU) | Reporting period: January 31, 2023 | | |

| Indicators of achievement and |
|------------------------------------|
| or/performance as indicated in the |
| project proposal |

- WP4-4.1 A quality control and monitoring system (M1)
- WP4-4.2 Internal quality control and monitoring (on a regular basis until the end of the project)
- WP4-4.3 External quality control and monitoring (M13 and M25)
- WP4-4.4 External financial audit (M27) (Not necessary)

Status of Deliverables*

| Deliver | Deliverable Title | Status (Y/N/NA) | | | | | | | |
|---------|---|-----------------|-----------|--------------------|----------------|---------------|---------------------|--|--|
| able No | | Preparing | Executing | Execution complete | Report to QCMB | Report to PEC | Officially Complete | | |
| 4.1 | Developing a quality control and monitoring system - | Y | Y | Y | Υ | Υ | Υ | | |
| 4.2 | Internal quality control and monitoring (on a regular basis until the end of the project) | Y | Y | N | Y | N | N | | |
| 4.3 | External quality control and monitoring | Y | Y | N | N | N | N | | |
| 4.4 | External financial audit | N | N | N | N | N | N | | |

^{*}Please list all deliverables of the WP.

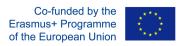
Activities carried out to date to achieve this result:





| Task No | Task Title | Start date | End date** | Place/ Partners involved | | Description of the activity carried out | | Specific and measurable indicators of achievement |
|---------|---|--------------------|--------------------|--------------------------------|---|---|---|---|
| 4.1 | Developing a quality control and monitoring system | Feb 1, 2021 | Sep 13, 2021 | All partners | • | Developed a QCMP and supporting Quality Management System templates Reviewed and approved the contents of the QCMP by QCMB Revised the QCMP according to the project management flow given by PC., approved Project Proposal and the ReCap 4.0 Erasmus Projects Overview. Submitted to PEC for approval. Revised QCMP per PEC comments Submitted to PEC for approval | • | An official QCMP https://bit.ly/3w10DN4 The Quality Management System templates drafts are available on the ReCap4.0 Project Portal: https://bit.ly/38Y0Uud |
| 4.2 | Implementing the internal quality control and monitoring of the project | Mar 11, 2021 | - | All partners | • | Updated data of the task deadlines, responsible and the current stage of WP's in the Quality Control and Monitoring Template Reviewed and approved the contents of deliverable, "WP1-1.1 A capacity assessment execution plan" | • | Consolidated Quality Control and Monitoring Report (QCMR) https://bit.ly/3Z6sHgP The consolidated reviewed report (The consolidated deliverable evaluation template) for the deliverable WP1-1.1 |

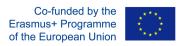




| | |
|---|--|
| deliverable, "WP5-5.1 A Dissemination, Exploitation and Sustainable plan (DESP)" Reviewed and approved the contents of deliverable, "WP4-4.1 A quality control and monitoring system." | The consolidated reviewed report (The consolidated deliverable evaluation template) for the deliverable WP5-5.1 https://bit.ly/3IC4Y2v The consolidated reviewed report (The consolidated deliverable |
| monitoring activities and adapting the necessary templates. Data collection and work for drafting the second consolidated QCMR- Quality Control and | evaluation template) for the deliverable WP4-4.1 and Revised QCMP per PEC comments. Tasks, templates and QCMR reports. |
| Board Report (QCMBR) Reviewed and approved the revised version of "WP5-5.1 A Dissemination, Exploitation and Sustainable plan (DESP)" | Quality Control and Monitoring Board Report (QCMBR) for the period January 2021 to July 2021: https://bit.ly/3LN2xZX |
| university capacity assessment report (WP1-D1.4) • Evaluated document for the following | Consolidated review report for WP1-D1.4. https://bit.ly/3Z4ssTj |
| Communication and People Skills Development (Module 2) Innovative Teaching and Learning | Consolidated reports for course modules WP2 https://bit.ly/3KfM4jg |
| · · · · · · · · · · · · · · · · · · · | Consolidated review report for WP3-3.1. |

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| | | | | Applications of Optimization and Technology in Value Chain (Module 7) Digital Manufacturing (Module 8) Innovative Product Design and Development (Module 9) Data Analytics (Module 10) Prepared training evaluation reports Vol 1 (Period Dec 2021-Mar 2022) Vol 2 (Period Apr 2022-Jul 2022) Vol3 (MIC, Ireland, June-July 2022) Vol4 (University of Minho, Braga, Portugal, Sep 2022) Prepared Training Evaluation Report, Vol.5 (Nov 2022-Jan 2023). Reviewed and approved a capacity training execution plan (CTEP), subject to correction | • | Training evaluation report for period Dec 2021-Mar 2022. (QD-TER-V1) https://bit.ly/3IMyCJq |
|-----|---|-------------|--|--|---|---|
| 4.3 | Inviting independent external evaluation of the project results | Oct 2021 | All partners and External evaluator | Prepared a process for selection of an external evaluator Reviewed the candidates proposed by PC Recommended the selected candidate to PEC Invited the selected external auditor Prepared contract for the external audit | • | Consolidated review results of the procedure: https://bit.ly/3901nfu Procedures for Independent External Evaluation for the Project Results: https://bit.ly/3vLZHz3 |

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| | | Facilitated the external evaluation process (handling the questionnaires). Organized with PC the audit interview for external auditor. Reviewed the evaluation report Helped PC to prepare the midterm report. | Assessment results https://bit.ly/3P09ycc Contract signed between the legal representative and the external evaluator. Midway audit conducted by the external evaluator https://bit.ly/3d4NoHr Midway external quality control and monitoring report. |
|--|--|---|--|
|--|--|---|--|

^{**} if it is still ongoing, please put "-".

Activities to be carried out to achieve this outcome (before the end of the project)

| Task No | Task Title | Start date | End date# | Place/ Partners involved | Description of the activity carried out | Specific and measurable indicators of achievement |
|---------|---|---------------|--------------|--------------------------------|---|--|
| 4.2 | Implementing the internal quality control and monitoring of the project | Dec 2020 | Nov 2023 | All partners | Monitor the project activities Execute quality control of all deliverables according to the proposal until the end of the project. | Updated quality monitoring report as Link to the file: https://bit.ly/37mCwlu |

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| | | | | | | Consolidated report of QCMB using Deliverable Evaluation Template |
|-----|---|-------------|-------------|--|---|---|
| 4.3 | Inviting independent external evaluation of the project results | Nov 2021 | Nov 2023 | All partners and External evaluator | Draft a contract between the external evaluator and the project Facilitate the external evaluation process | Midway external quality control and monitoring report. Final external quality control and monitoring report. |

according to the proposal

Corrective Actions **

| Task No | Task Title | Start date | End date* | Place/ Partners involved | Description of the activity carried out | Specific and measurable indicators of achievement |
|---------|------------|---------------|--------------|--------------------------------|---|---|
| n/a | n/a | | | | • | |
| | | | | | | |

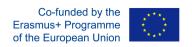
^{**}Only when corrective actions are needed.

Changes that have occurred in this result since the original proposal:

- For WP4 a revision was proposed compared to the initial plan. WP 4. Task 4.1 Quality Control and Monitoring System, start date. 4.1 -Feb 1, 2021and closing date June 30, 2021
- External financial audit will be no longer required. All partners will be ask to provide internal audits.



Reinforcing Non-University Sector at the Tertiary Level in Engineering and Technology to Support Thailand Sustainable Smart Industry



| Title and reference number of the workpackage (WP) | WP5-Dissemination and Exploitation of Project Results | | |
|--|---|------------------------------------|--|
| WPL: Tuangyot Supeekit (MU) | Co-WPL: Pisut Koomsap (AIT) | Reporting period: January 31, 2023 | |

| Indicators of achievement and | • Dissemination, Exploitation and Sustainable plan is prepared by M1. |
|------------------------------------|--|
| or/performance as indicated in the | A project website is created and publicly available from M1. |
| project proposal | Online registration form for trianees is created by M2. |
| | A complete list of registered trainees from Rajabhat Universities is finalised by M4. |
| | • Dissemination materials will be available from M1. |
| | • Availability of publications regarding project outputs in professional journals, conference proceedings and social media from M18. |
| | • Training centres and training networks with 80 members are established by M36. |
| | Public seminars are organised at the beginning of project years; M1, M13, M24. |
| | • Final conference with project presentation from partners is arranged in M35. |

Status of Deliverables*

| Delivera | Deliverable Title | Status (Y/N/NA) | | | | | |
|----------|--|-----------------|-----------|--------------------|----------------|---------------|---------------------|
| ble No | | Preparing | Executing | Execution complete | Report to QCMB | Report to PEC | Officially Complete |
| Dev5.1 | A Dissemination, | Υ | Υ | Υ | Υ | Υ | Υ |
| | Exploitation and | | | | | | |
| | Sustainable plan (DESP) | | | | | | |
| Dev5.2 | A project website | Υ | Υ | N | N | N | N |
| Dev5.3 | A list of registered trainees from the non-university sector at tertiary level in Thailand | Υ | Y | N | NA | NA | N |
| Dev5.4 | Dissemination materials | Y | Y | N | N | N | N |



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| Delivera | Deliverable Title | | | Status | (Y/N/NA) | | |
|----------|--|-----------|-----------|--------------------|----------------|---------------|---------------------|
| ble No | | Preparing | Executing | Execution complete | Report to QCMB | Report to PEC | Officially Complete |
| Dev5.5 | Publications in professional journals, newspapers, magazines, brochures and social media | Υ | Y | N | N | N | N |
| Dev5.6 | A list of the members of the Innovative Teaching and Learning Centre for Thailand Sustainable Smart Industry | Y | N | N | NA | NA | N |
| Dev5.7 | Dissemination events | Y | Y | N | NA | NA | N |
| Dev5.8 | A dissemination- sustainability conference | N | N | N | NA | NA | N |

^{*}Please list all deliverables of the WP.

Activities carried out to date to achieve this result:

| Task No | Task Title | Start | End date** | Place/ | | Description of the activity carried out | Specific and measurable indicators of achievement |
|----------|------------------|-------|---------------|-------------------|---|---|---|
| | | date | date | Partners involved | | | achievement |
| Task 5.1 | Development of a | Apr | Jan 23, | All partners | • | Discussed about activities | An official DESP |
| | Dissemination, | 23, | 2022 | | • | Drafted a DESP | https://bit.ly/3BvrBC3 |
| | Exploitation and | 2021 | | | • | Reviewed the plan | |
| | Sustainable plan | | | | • | Submitted the DESP to QCMB | |
| | | | | | • | Revised the DESP according to QCMB's | |
| | | | | | | feedback | |
| | | | | | • | Submitted the revised DESP to QCMB | |





| Task No | Task Title | Start date | End date** | Place/ Partners involved | Description of the activity carried out Specific and measurable indicators of achievement |
|----------|---|--------------------|---------------|--------------------------------|--|
| | | | | | Revised DESP as per QCMB comments and submitted to PEC for approval Drafting exploitation plan |
| Task 5.2 | Creating a project website and maintaining it throughout the project lifetime to support the dissemination strategy, and communication and collaboration among partners | Jan 12, 2021 | - | AIT | Designed, created and launched both the project website and Member Space (internal website for the project's members) Transformed MSIE 4.0 Facebook to ReCap 4.0 Facebook and keeping it up to date with the activites of ReCap 4.0 Created a YouTube Channel for ReCap 4.0 Updating contents to keep these communication channels up to date. Updating the website with short articles about Industry 4.0 and EU consortium partners The project website: https://recap4.ait.ac.th/ Member Space: https://bit.ly/3FkQAIT (Permission is required to access the member space) Facebook: ReCap4Thailand https://bit.ly/3sfMGeJ YouTube Channel: https://bit.ly/388mdcj |
| Task 5.3 | Inviting non-university sector to participate in the training program and preparing for online training registration | Dec 22, 2020 | - | AIT, PSU | Visited Nakorn Pathom Rajabhat University in December 2020 to introduce the project to the administration of the Faculty of Science and Technology and invite them to send their faculty members to participate in The report on the visit to promote the project and invite the target teaching staff is available at https://bit.ly/3BweAls Online registration form available via the project website |





| Task No | Task Title | Start date | End date** | Place/ Partners involved | Description of the activity carried out | Specific and measurable indicators of achievement |
|---------|------------|---------------|---------------|--------------------------------|---|---|
| | | | | | the competence development training program Attended the 31st meeting of the Council of the Industrial Technology Deans of Rajabhat Universities in March 2021 to introduce the project and invite them to send their faculty members to participate in the training program Visited Nakorn Si Thammarat Rajabhat University, Songkla Rajabhat University and Suratthani Rajabhat University to introduce the project to the faculty members of the Faculty of Industrial Technology and the Faculty of Science and Technology and invite them to participate in the training program Created an online registration for the teaching staff to register for training Monitoring, responding, and updating the registration Organized two meetings and presented the ReCap 4.0 Competence Development program to trainees in the Central and Southern regions. The activity has been on hold for the other two regions due to the third wave of the COVID-19 pandemic. | https://bit.ly/3OZEEk3 Information Session for Central Region https://bit.ly/38R87vY Tentative lists of trainees from Rajabhat universities (150 trainees as of 15 June 21 for initial registration) Some visits were postponed from the previous scheduled at beginning of January 2022 due to the emergence of Omicron at the end of December 2021 |





| Task No | Task Title | Start date | End date** | Place/ Partners involved | cription of the activity carried out | Specific and measurable indicators of achievement |
|---------|------------|---------------|---------------|--------------------------------|--|---|
| | | | | | pared and sent official invitation ers to 36 trainees in the Central ion and 12 trainees in the Southern ion and 12 trainees in the Southern ion atacting Rajabhat Universities in the th and Northeastern eduled a visit to the Rajabhat versities in the North for promotion ted Nakhon Sawan Rajabhat versity to promote ReCap 4.0 ject and invite the faculty mbers to participate in our inpetence development training igram. Ited Lampang Rajabhat University or competence development training in the faculty members to ticipate in our competence velopment training program as all as prepare training program as all as prepare training in Northern ion ted Rajamangala University of hnology Isan Surin Campus, Surindiabhat University, and Ubon | y n |





| Task No | Task Title | Start date | End date** | Place/ Partners involved | Description of the activity carried out | Specific and measurable indicators of achievement |
|----------|---------------------------------------|-----------------|---------------|--------------------------------|--|--|
| | | | | | Ratchathani Rajabhat University to promote ReCap 4.0 project and invite the faculty members to participate in our competence development training program Conducted online sessions for Northeastern region as a group as well as for individual universities, including Nakhon Ratchasima Rajabhat University, Rajabhat Maha Sarakham University, Loei Rajabhat University and Kalasin University Promoting Training Modules: Innovative Teaching and Learning Methods (ITM) and Data Analytics (DA) | |
| Task 5.4 | Production of dissemination materials | Jan 12, 2021 | - | All partners | Created a poster and distributed to WP5 members for dissemination and post on their universities' websites. Created a flyer and distributed to visited Rajabhat Universities Created contents about the project's activities for the project website, Facebook and YouTube Channel Created a project introduction video Created the first issue of E-newsletter Created the second issue of E-newsletter | A poster published in Production Engineering Archive Journal (April 2021) A flyer (same format as poster) https://bit.ly/3Dk5Jei Contents on the project website, Facebook and YouTube Channel A VDO clip is available on the Virtual Exhibition. E-newsletter issue1 https://bit.ly/3yhR1ll |





| Task No | Task Title | Start date | End date** | Place/ Partners involved | | Description of the activity carried out | | Specific and measurable indicators of achievement |
|----------|--|--------------------|---------------|--------------------------------|---|--|---|--|
| | | | | | • | Created ReCap 4.0 Virtual Exhibition Created the third issue of E-newsletter | • | E-newsletter issue2 https://bit.ly/3Ogvsa3 E-newsletter issue 3 https://bit.ly/417WiYO ReCap 4.0 Virtual Exhibition https://bit.ly/3RPs9YS |
| Task 5.5 | Publications in professional journals, newspapers, magazines, brochures and social media | Apr 15, 2021 | | MIC, AIT, KMUTNB | • | Introduced the project on the university website (MIC), and local newspapers Manuscript on a finding from WP1 "Analysis of Teacher's Competences for Industry4.0 subjects" has been published in Applied Science and Engineering Progress, Vol.16, No.4, 2023. A development of a toolkit for training on course design has been presented at the 29 th International Conference on Transdisciplinary Engineering in July 2022. It will appear in the conference proceedings. The extended version has been invited for a journal publication. The extended version of the toolkit for training manuscript; "Student Learning Journey Map (SLJM): an instructional design process and toolkit to support constructive enhancement" has been | • | Report on publications https://bit.ly/3VVN5Ad |





| Task No | Task Title | Start date | End date** | Place/ Partners involved | Description of the activity carried out Specific and measurable indicators of achievement |
|----------|--|--------------------|---------------|--------------------------------|--|
| Task 5.7 | Organizing dissemination events with relevant stakeholders | Mar 1, 2021 | - | AIT, MU | published in Product: Management and Development Vol.20, No.1, 2022. Disseminated the project information and the training program in twenty events. It has been done both in person The report page on the dissemination events https://bit.ly/3xfv05t |
| | | | | | and online in various occasions. We organized some of the dissemination events and invited to participate in the others. Contacted speakers and arranged the first dissemination event in March 2021 "Strengthening Rajabhat University, Local Driving Mechanism, to Support Sustainable Growth of Thailand Organized a public seminar at KMUTNB on Jan 30, 2023 Quick links to a few events The first dissemination event (Online) https://youtu.be/g4gU5GZU8EM Project presentation at QPI conference https://bit.ly/3vKSb7I The SHARE 14th Policy Dialogue of The Contribution of Higher Education Partnerships in Southeast Asia towards the Achievement of the Sustainable Development Goals 2030" https://bit.ly/3yaXNck |
| 5.8 | Organizing the final dissemination-sustainability conference | Nov 19, 2021 | - | AIT | Submitted an interest in hosting the 30th International Conference on Transdisciplinary Engineering (TE 2023) in 2023 in Thailand and awarded the right to host the conference. Surveyed potential venue The 30th ISTE International Conference on Transdisciplinary Engineering (TE 2023) http://te2023.ait.ac.th/ EasyChair for TE2023 paper submission https://bit.ly/3TtDZsR |



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| Task No | Task Title | Start date | End date** | Place/ Partners involved | Description of the activity carried out | Specific and measurable indicators of achievement |
|---------|------------|---------------|---------------|--------------------------------|---|--|
| | | | | | Created the web submission platform on EasyChair Called for papers and workshop sessions Announced the venue and theme of the conference. | Call for Papers and Workshop Sessions https://bit.ly/3z9fvNH Venue for the conference: Dusit Thani Hua Hin Theme of the conference: |

^{**} if it is still ongoing, please put "-".

Activities to be carried out to achieve this outcome (before the end of the project)

| Task No | Task Title | Start date | End date** | Place/ Partners involved | | Description of the activity carried out | | Specific and measurable indicators of achievement |
|----------|---|---------------|---------------|--------------------------------|---|---|---|---|
| Task 5.2 | Creating a project website and maintaining it throughout the project lifetime to support the dissemination strategy, and communication and collaboration among partners | Nov 2020 | Nov 2023 | AIT and MU | • | Keep the website, Facebook as well as YouTube regrading activities and results up to date | • | Up to date project website, Facebook and YouTube |





| Task No | Task Title | Start date | End date** | Place/ Partners involved | | Description of the activity carried out | 3 | Specific and measurable indicators of achievement |
|----------|--|---------------|---------------|---------------------------------|---|---|---|---|
| Task 5.3 | Inviting non-university sector to participate in the training program and preparing for online training registration | Nov 2020 | Feb 2021 | AIT and all Thai partners | • | Contact the administration and teaching staff of the non-university sector at tertiary education level in Thailand to introduce the Industry 4.0 competence development training program Invite teaching staff to participate in the training program Short list the registered trainees and submit to WP3 leader. | • | A list of registered trainees |
| Task 5.4 | Production of dissemination materials | Jan 2021 | Nov 2023 | All the members | • | Create promotional materials. Create contents for the website, Facebook and YouTube Issue newsletter twice a year providing key project results, information regarding the project process and the training sessions as main messages | • | Poster Leaflet Newsletters (Half-yearly) |
| Task 5.5 | Publications in professional journals, newspapers, magazines, brochures and social media | Apr 2022 | Oct 2023 | All the partners | • | Disseminate project outputs achieved at each stage of the project in relevant professional journals, conference proceedings, newspapers, magazines, and social media Review the task every 6 months | • | Publications regarding project outputs get published in professional journals, conference proceedings and social media. |
| Task 5.6 | Setting up training network among the members of partner universities and of associated partners | Apr 2023 | Oct 2023 | All the partners | • | Setup training network among the members and associated partners Share information about the activities of the center | • | A list of the members of the training center |



Reinforcing Non-University Sector at the Tertiary Level in Engineering and Technology to Support Thailand Sustainable Smart Industry



| Task No | Task Title | Start date | End date** | Place/ Partners involved | | Description of the activity carried out | | Specific and measurable indicators of achievement |
|----------|--|---------------|---------------|--------------------------------|---|--|---|---|
| Task 5.7 | Organizing dissemination events with relevant stakeholders | Nov 2020 | Sep 2023 | All the partners | • | Organise dissemination events such as public seminar and info days to disseminate key results of some work packages/ training programmes | • | Public seminars |
| Task 5.8 | Organizing the final dissemination-sustainability conference | Jul 2023 | Sep 2023 | All the partners | • | Organise a conference Present project results, achievements, and sustainability measures | • | A conference Project presentation |

according to the proposal

Corrective Actions **

| Task No | Task Title | Start date | End date* | Place/ Partners involved | Description of the activity carried out | Specific and measurable indicators of achievement |
|---------|------------|---------------|--------------|--------------------------------|---|---|
| | | | | | • | |
| | | | | | | |

^{**}Only when corrective actions are needed.

Changes that have occurred in this result since the original proposal:





| • | The WP5 plan has been revised once in Mar 2021. |
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| Title and reference number of the workpackage (WP) | WP6- Project Management | | | | |
|--|-------------------------|------------------------------------|--|--|--|
| WPL: Pisut Koomsap (AIT) | Co-WPL: | Reporting period: January 31, 2023 | | | |

| Indicators of achievement and |
|------------------------------------|
| or/performance as indicated in the |
| project proposal |

- Approved PMCP by PEC by M1
- 7 PEC meetings are organized and decisions are implemented
- Project is implemented according to the plan. Efficient and successful project and financial management by M36
- Submission of midterm progress report by M18 and final report by M36

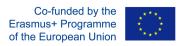
Status of Deliverables*

| Deliver | Deliverable Title | Status (Y/N/NA) | | | | | | | |
|---------|--|-----------------|-----------|---------------------------|----------------|---------------|---------------------|--|--|
| able No | | Preparing | Executing | Execution complete | Report to QCMB | Report to PEC | Officially Complete | | |
| Dev 6.1 | Project management and communication plan | Υ | Y | Y | N/A | Υ | Υ | | |
| Dev 6.2 | Kick-off and regular consortium meetings | Υ | Y | N | N/A | Υ | N | | |
| Dev 6.3 | Documents on daily project administration and coordination | Y | Y | N | N/A | N/A | N | | |
| Dev 6.4 | Midterm progress and final reports for the project | N | N | N | N/A | N | N | | |

^{*}Please list all deliverables of the WP.

Activities carried out to date to achieve this result:





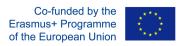
| Task No | Task Title | Start date | End date** | Place/ Partners involved | | Description of the activity carried out | | Specific and measurable indicators of achievement |
|----------|---------------------------------|--------------------|--------------------|--------------------------------|---|--|---|---|
| Task 6.1 | Finalizing management structure | Nov 15, 2020 | Sep 30, 2022 | All partners | • | Processed a request to change consortium members Established Project Executive Committee (PEC) Prepared 7 bilateral partnership agreements (PAs) between AIT and other seven partners Sent the PAs to all partners to review and sign Structured MSIE 4.0 consortium Identified roles and responsibilities of members Created project management flow Revised workplan for entire project after the kick-off meeting on February 2021 Established project financial management Established internal communication channels Created document templates for managing the project Completed all 7 PA and submitted to EACEA Developing Project Management and Communication Plan (PMCP) | • | Official approval from EACEA on changing of consortium members PEC and QCMB Submission of 7 completely signed PAs to EACEA An official PMCP https://bit.ly/3FhWBGb Submission of required documents for changing of legal representative |





| | | | | | Developed Project Management and Communication Plan (PMCP) Approved PMCP by PEC Collected, prepared, and submitted documents for changing of the legal representative |
|------|--|--------|---|--------------|--|
| Task | 6.2 Organizing kick-off and regular meetings | Feb 21 | - | All partners | Organized online PEC meeting on Feb 3, 2021 Organized online general meeting Mar 10-11, 2021 Organized Project meeting at MIC during June 27-July 1, 2022 Organized online PEC meeting on Oct 26, 2022 Organized online partner leaders meeting on Nov 4, 2022 Organized online PEC meeting on Dec 14, 2022 Organized Project meeting at PSU during Jan 31, 2023 – Feb 4, 2023 |
| Task | 6.3 Monitoring and controlling the project | Nov 20 | - | All partners | Followed up with WP leaders on the progress of the project Reminded the WPLs for submission of WP quarterly reports Had meetings with WP leaders Reviewed and gave feedback on QCMP Project Quarterly reports https://bit.ly/3VUiUJI PEC's approval for QCMP Feedback to QC Chair for the Quality Control and Management Board Report |





| | Had a meeting with MU team on | • | PEC's approval for DESP |
|--|---|---|--|
| | financial report | • | PEC's approval for the external |
| | Reviewed, approved and uploaded the | | evaluator |
| | capacity assessment execution plan on | • | Purchase order requests |
| | the project website | • | Approved the following training |
| | Reviewed, approved and uploaded the | | module |
| | quality control and monitoring plan on | | Communication and People Skills |
| | the project website | | Development (Module 2) |
| | Reviewed and gave feedback on Quality | | Innovative Teaching and Learning |
| | Control and Management Board Report | | Methods (Module 3) |
| | Reviewed timesheets for partners | | Applications of Optimization and |
| | Reviewed, approved and uploaded the | | Technology in Value Chain |
| | dissemination, exploitation and | | (Module 7) |
| | sustainability plan (DESP) on the project | | Innovative Product Design and |
| | website | | Development (Module 9) |
| | Reviewed and approved the candidate | | Data Analytics (Module 10) |
| | for the external evaluator | | |
| | • • • | • | Official contract for signatures of the |
| | setup training facilities | | legal representative and the external |
| | Reviewed and approved the following | | evaluator |
| | modules | | |
| | Communication and People Skills | • | Meeting with the external evaluator |
| | Development (Module 2) | | for midway evaluation |
| | Innovative Teaching and Learning | | |
| | Methods (Module 3) | • | Approval of the midterm audit report |
| | Coaching and Mentoring Skills | | |
| | Development (Module 5) | | |

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ERASMUS+ CBHE PROJECT

Reinforcing Non-University Sector at the Tertiary Level in Engineering and Technology to Support Thailand Sustainable Smart Industry



| 6.4 | Closing project | Aug 23 | Applications of Optimization and Technology in Value Chain (Module 7) Digital Manufacturing (Module 8) Innovative Product Design and Development (Module 9) Data Analytics (Module 10) Visited Lampang Rajabhat University in March 2022 to check facilities for conducting training for participants in the North Reviewed contract for the first external audit Facilitated the midway project evaluation by the external evaluator Reviewed project quarterly reports Reviewed and gave feedback on partners' financial reports Prepared and submit midterm progress Submission of the midterm progress |
|-----|-----------------|--------|--|
| 0.4 | Closing project | Aug 23 | report report submit midterm progress report |

^{**} if it is still ongoing, please put "-".

Activities to be carried out to achieve this outcome (before the end of the project)

| Activities | Activities to be curried out to define this outcome (before the end of the project) | | | | | | | | | | |
|------------|---|--------|--------|--------------|---|---------------------------------------|--|--|--|--|--|
| Task No | Task Title | Start | End | Place/ | Description of the activity carried out | Specific and measurable indicators of | | | | | |
| | | date | date# | Partners | | achievement | | | | | |
| | | | | involved | | | | | | | |
| Task 6.2 | Organizing kick-off and | Feb 21 | Sep 23 | All partners | Organize 5 regular meetings | Remaining 5 meetings are organized | | | | | |
| | regular meetings | | | | | | | | | | |

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ERASMUS+ CBHE PROJECT

Reinforcing Non-University Sector at the Tertiary Level in Engineering and Technology to Support Thailand Sustainable Smart Industry



| Task 6.3 | Monitoring and controlling the project | Nov 20 | Nov 23 | All partners | Monitor, assess and give feedback to related WPLs on the progress of tasks under their supervisions Review and give feedback on financial statement and related financial documents to the partner leaders. Remind the WPLs and partner leaders for submission of WP monthly reports and financial statements respectively Make final reviews of the remaining project outcomes approved by QCMB Update PMCP if it is necessary Upload official reports approved by PEC and financial documents passed the screen of PC on the website | |
|----------|--|--------|--------|--------------|--|--|
| Task 6.4 | Closing project | Aug 23 | Nov 23 | All partners | Collect all documents Prepare a draft of the final report Review and finalize the report Submit the final report | |

according to the proposal

Corrective Actions **

| Task No | Task Title | Start date | End date* | Place/ Partners involved | Description of the activity carried out | Specific and measurable indicators of achievement |
|----------|------------|---------------|--------------|--------------------------------|---|---|
| Task x.x | | | | | • | |
| | | | | | | |

^{**}Only when corrective actions are needed.





| (| Changes that have occurred in this result since the original proposal: |
|---|--|
| | A plan has been revised one time. |
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