Deliverable [WP2]: [STUDY MATERIAL DEVELOPMENT REPORT]

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Prepared by

BANASTHALI UNIVERSITY

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

Project information

Project Acronym: 21TS

Project Title: Teacher training with specialization on life and information technology skills

Project Reference: 610349-EPP-l-2019-l-ELEPPKA2-CBHE-JP

Project Website: www.21stTeachSkills.eu

Authoring Partner: [Banasthali Vidyapith]

Document Version: [1]

Date of Preparation: [15.4.2023]

Document History			
Date	**Version**	**Author**	**Description**
15.4.2023	V1	BV	Study Material Development Report

The 21TS project has been funded with support of the Erasmus+ Program of the European Commission. The European Commission's support to produce this publication does not constitute an endorsement of the contents, which reflect the views only of the authors, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

Contents

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A. Course Description

This educational programme will consist of an accredited 6-month course, tailored to two different groups of people: students of a bachelor's degree relevant to teaching and education and in-service schoolteachers and educators. For that reason, the course can be offered as a core component in the final year of a bachelor's degree or can be offered as an independent course for the in-service teachers.

The duration for course will be 6 months that would be of 40 ECTS including 4 mandatory modules for students and 2 minimum for the in-service schoolteachers. The course will use pedagogical approach or method such as Lectures, presentations, discussion of readings, case studies, and practical assignments.

The course meant for preservice students enrolled in undergraduate-postgraduate studies and will be offered as online MOOC.

The course will cover the following areas (all mandatory):

Module 1 (10 ECTS): Teaching critical thinking and collaborative problem-solving skills

Leader: SCES

Module 2 (10 ECTS): Education Technology skills (based on the Technological Pedagogical Content Knowledge)

Leader: SWU

Module 3 (10 ECTS): Authentic learning tasks: practical implementation of the skills in the classroom

Leader: SZPT

Module 4 (10 ECTS): Optimizing Assessment for 21st century skills

Leader: RUPP

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B. Course Content

B.1 Module 1 (https://21stteachskills-vle.eu/course/index.php?categoryid=4)

Module 1 Course on **Teaching critical thinking and collaborative problem-solving skills** is of 10ECTS equivalent to 260 Hours, this course includes 13 Units such as Concept and Classification of 21st Century Skills, Critical Thinking -Concept, Characteristics and Elements, Process of Critical Thinking, Strategies to develop Critical Thinking Skills, Methods and Tools to develop Critical Thinking Skills, Role of a Teacher to promote Critical Thinking Skills, Assessment of Critical Thinking Skills, Suggested activities for Critical Thinking Skills, Collaborative Problem-Solving Skills -Concept, Characteristics and Elements, Methods and Tools to develop Collaborative Problem-Solving Skills, Role of a Teacher to promote Collaborative Problem-Solving Skills, Assessing student's Collaborative Problem-Solving Skills, Suggested Activities for Collaborative Problem-Solving Skills through the mode of Lectures, Self-learning, Synchronous and Asynchronous online sessions, workshops, group work, field work, Website Analysis, Flipped classroom, Collaborative Online International Learning, demonstrations, discussions, tutorials and collaborative problem-solving activities.

Assessment procedure followed for this module will include Assignment based on Inquiry (10 points) , Quiz(es) (20 points), Learning Logs (10 points) , Research Paper (based on critical thinking skills) (30 points) , Inter-disciplinary Collaborative Project (field/community based) (30 points)

Learning Objectives

This module presents the opportunities for establishing interrelationship among critical thinking skills, communication skills, learning skills and life skills and learners will be able to

- explain the concept of 21st century skills and to understand the elements of inquiry and critical thinking.
- appraise and analyze the concept, characteristics and elements of critical thinking and evaluate strategies relating to critical thinking skills
- enable the participants to create methods and tools for critical thinking skills and to appraise the role of teacher in promoting critical thinking skills in students
- design the best suited activities for developing critical thinking skills in students and to be able to assess the performance of students in critical thinking skills by designing multi-level evaluation methods and providing the rubrics and measure the outcome
- appraise the concepts relating to the skill of understanding transdisciplinary problem

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- discuss the concept, characteristics and elements of collaborative problem-solving skills to apply the methods and tools for collaborative problem-solving
- to appraise the role of teacher in promoting collaborative problem-solving skills in students with ethical compliance and to design the best suited activities for developing collaborative problem-solving skills in students for promoting innovation and entrepreneurship on actual problem
- to enable the teacher to assess the performance of students in collaborative problem-solving skills and measure their progress

B.2 Module 2 (https://21stteachskills-vle.eu/course/index.php?categoryid=5)

Module 2 Course on **Education Technology skills (based on the Technological Pedagogical Content Knowledge)** is of 10ECTS equivalent to 260 Hours, this course includes 09 Units covering the Introduction, key issues, and debates, Computer-mediated Communication(Part 1), Computer-mediated Communication (Part 2), Social Networking and Learning, Game-based Learning, Technology and Assessment, Evaluating and researching technology-enhanced learning and teaching, Teaching with Technology, Student presentations through the mode of Lectures, Self-learning, Synchronous and Asynchronous online sessions, workshops, group work, field work, Website Analysis, Flipped classroom, Collaborative Online International Learning, demonstrations, discussions, tutorials and collaborative problem-solving activities.

The module consists of different tutor-facilitated sessions, involving discussions, demonstrations of technologies, group work and practical tasks. Each session will have a strong pedagogical component, emphasizing the practical applicability of the content discussed. Learners will be expected to participate actively, sharing their everyday experience of using technology. Learners will also be encouraged to contribute to a class discussion throughout the term, on topics related to the module. This course is meant for pre-service and in-service teachers, bachelor learners and master's learners.

Assessment procedure followed for this module will include Assignment based on Inquiry (10 points) , Quiz(es) (20 points), Learning Logs (10 points) , Research Paper (based on critical thinking skills) (30 points) , Inter-disciplinary Collaborative Project (field/community based) (30 points)

Learning Objectives

This module aims to familiarize students with a variety of technological tools and applications used in the area of teaching and learning. To do so, the module helps students to understand the

pedagogical approaches and practical aspects of technology in teaching and learning, become aware of the technological, social and linguistic implications of the use of technology in education and explore emerging issues in teaching and learning with technology.
•Identify and evaluate the possibilities and challenges of using various technological resources and activities.
•Discuss and use technology in education from both pedagogical and socio-cultural perspectives
•Evaluate technology-enhanced learning and teaching programmes.
•Engage critically with published research and with practical learning problems.
•Show awareness of varying learners' needs and understanding how to respond with technology.
•Understanding and evaluating primary technological tools used in education
•Ability to adapt different technologies for teaching and learning purposes
•Ability to select and integrate different technologies
•Ability to evaluate technology enhanced programmes

B.3 Module 3 (https://21stteachskills-vle.eu/course/index.php?categoryid=3)

Module 3 Course on **Authentic learning tasks: practical implementation of the skills in the classroom.** This module is designed for pre-service or in-service teachers to make them equipped and skilled in authentic learning in practical dimensions.

As George Siemens suggested, learning to be a physicist, a chemist, or an historian is all about forging concrete connections—interpersonal connections between apprentices and mentors, intellectual connections between the familiar and the novel, personal connections between the learner's own goals and the broader concerns of the discipline. Connection-building will require new forms of authentic learning—forms that cut across disciplines and bring learners into meaningful contact with the future employers, customers, clients, and colleagues who will have the greatest stake in their success. Without a doubt, technology will play an essential supporting role. This module is meant for pre-service and in-service teachers, bachelor learners and master's learners

This module presents an overview of authentic learning in practical level, including:

•1. Introduction to Authentic Learning

•2. Simulation-Based Learning

•3. Student-Created Media

•4. Inquiry-Based Learning

•5. Peer-Based Evaluation

•6. Working with Remote Instruments

- 7. Reflecting and Documenting Achievements
- 8. Working with Research Data

Learning activities for module 3 includes Collaborative Activities, Interdisciplinary problem-solving exercises, Learning by doing, Projects (field / Community / interdisciplinary), Models / Apps / Software, Directed Reading, Videos, Quiz, Story-telling, Multimodal texts, case analysis, work in groups, discussion, team project, individual project/ Assignment, teaching assignment, creative workshops, guest lecturer (practitioner) lecture, practical tasks, problem-based training, seminar, application of special software packages, blog, virtual teaching/learning environment (Moodle, video conference, meeting room, etc.)

Teaching methods includes Lectures, Self-learning, Synchronous and Asynchronous online sessions, workshops, group work, field work, Website Analysis, Flipped classroom, Collaborative Online International Learning, demonstrations, discussions, tutorials and collaborative problem-solving activities.

Learning objectives : **Learners will be able to**

- realize the importance of authentic learning and to understand the differences between various forms of argument Authenticity Learning and Traditional Learning
- explain the concept and objectives of Authentic Learning and simulation-based learning simulation
- discuss the benefits of Authentic Learning
- differentiate between simulation-based learning and traditional instruction
- inspire students' interest and thinking in simulation-based learning
- describe the elements and process of Simulation-Based Learning;
- differentiate among Identity-Based Simulation Learning, Problem-Based Simulation Learning, VR-Based Simulation Learning, Interactive-Based Simulation Learning
- analyze argument presented in an article
- explain the application of Simulation-Based Learning in Teaching
- prepare lesson plans for different types of learning

Assignment includes Technology Leaps (20 points), Quiz(es) (10 points), Learning Logs (10 points) , Learning Application assignments (60 points)

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B.4 Module 4 (https://21stteachskills-vle.eu/course/index.php?categoryid=7)

Module 4 Course on **Optimizing Assessment for 21st Century Skills**

The aim of the learning is to introduce the needs of 21st century skills and improve the assessment, teaching, and learning of 21stcentury skills by increasing assessment literacy among universities and national education stakeholders, focusing on the constructive use of assessment in education, and developing new methods for assessing 21stcentury skills. This is meant for academic staff, bachelor students and master's students.

The course covers:

- Concept, need and impact of Optimizing Assessment for development of 21st Century Skills
- Types of assessment for 21st Century Skills
- Techniques for assessing 21st Century Skills
- Dimensions, criteria, role of teacher and challenges of Assessment for 21st Century Skills in educational settings
- Documentation of assessment of 21st Century Skill

Learning Objectives: Learners will be able to

- Understand the needs of learning and teaching of the 21st Century Skills;
- Understand the associated elements with collaboration and team work, creativity and imagination, critical thinking, and problem-solving skill;
- Enhance knowledge of effective instructional strategies including productive group work, participation, and digital learning for 21st Century Skills;
- learn about information literacy, media literacy, and ICT (information, communication, technology) literacy for 21st Century Skills Learning & Teaching;
- Understand the way to select the common skills for the needs their own environment;
- Develop assessment tasks for 21st Century Skills (likes: Critical Thinking and Problem Solving);
- Identify the weakness in the assessment task
- Adopt and modify (optimize) assessment for the 21st Century Skills.

Teaching methods includes Lectures, Self-learning, Synchronous and Asynchronous online sessions, workshops, group work, field work, Website Analysis, Flipped classroom, Collaborative

Online International Learning, demonstrations, discussions, tutorials and collaborative problem-solving activities.

Assignment includes Inquiry (10 points), Quiz(es) (20 points), Learning Logs (10 points) , Research Paper (based on critical thinking skills) (30 points) , Inter-disciplinary Collaborative Project (field/community based) (30 points).

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