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Promoting Digital Higher Education by Introducing Immersive Learning into Educational Studies

Intellectual Output 2
"XR4Ped Syllabus and Study Course"

MODULE PLAN INFORMATION

Subject/Course: **Promoting Digital Higher Education by Introducing Immersive Learning into Educational Studies**
Stage: **1-4 (Higher Education)**
Module Topic: **Immersive Learning in General**
Total Workload: **10hours**

SYLLABUS

- Introduce XR terminology
- Establish risks with VR education
- Cost/benefit analyses of XR education
- Ethically aligned XR education

LECTURER NOTES

- Provide Webinar and Tutorials' documents
- Ensure that students are involved in all activities

TEACHING METHODS

☐Face to Face Learning
☒Blended Learning
☐On-Line Learning
☒Learning by doing
☐Project-based learning
☒Active learning strategies
☐Peer learning
☒Hands-on learning
☐Collaborative learning

Immersive Learning in General

DEVICES, SOFTWARE AND HARDWARE

Oculus, desktop and mobile phone/tablet (iOS or Android with access to Apple Store/Google Play). The apps are free to download and use.

MODULE TASK

Students will learn about XR terminology, immersive learning, risks and recommendations of XR hardware and ethically aligned immersive applications in education. Furthermore, the students will learn about cost/benefit analysis in education.

MODULE LEARNING OUTCOMES

By completing this module, students will achieve learning outcomes and learn skills such as:

- Utilizing the right terminology in XR
- Recognise ethically aligned XR applications in education
- Measure the cost/benefit of XR applications in education

WORKLOAD: 10 HOURS

4 Face-to-Face/Webinars: 4 hours
- XR terminology and immersive learning (1 hour)
- Risks and considerations for hardware (1 hour)
- Cost/benefit analyses of an XR education (1 hour)
- Showcase the process of ethically aligned immersive applications in XR (1 hour)

2 self-learning exercises: 6 hours
- The webinars will provide two self-learning exercises for self-practicing activities

REFLECTION

- What new did you learn in this module?
- How will you apply ethics in the XR applications in your classroom?

TESTING / ASSESMENT

- End of Module Self-Assessment Survey anonymous data collection

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MODULE PLAN INFORMATION

Subject/Course: **Promoting Digital Higher Education by Introducing Immersive Learning into Educational Studies**
Stage: **1-4 (Higher Education)**
Module Topic: **XR S/W and H/W for Education**
Total Workload: **10 hours**

SYLLABUS

- Provide Webinar and Tutorials' documents
- Ensure that students are involved in all activities

LECTURER NOTES

- Provide Webinar and Tutorials' documents
- Ensure that students are involved in all activities

TEACHING METHODS

☐Face to Face Learning
☒Blended Learning
☐On-Line Learning
☒Learning by doing
☐Project-based learning
☒Active learning strategies
☐Peer learning
☒Hands-on learning
☐Collaborative learning

XR Software/hardware for Education

DEVICES, SOFTWARE AND HARDWARE

Oculus, desktop and mobile phone/tablet (iOS or Android with access to Apple Store/Google Play). The apps are free to download and use.

MODULE TASK

Students will learn where to find software and hardware for educational purposes.

MODULE LEARNING OUTCOMES

By completing this module, students will achieve learning outcomes and learn skills such as:

- Current hardware available and
- Current software available.

WORKLOAD: 10 HOURS

2 Face-to-Face/Webinars: 4 hours
- Showcase of hardware, available in the market for education
- Showcase of software, available in the market for education

2 self-learning exercises: 6 hours
- Each webinar will provide a self-learning exercise for self-practicing activities

REFLECTION

- Would you consider using any of the hardware or software within your practices?
- What new did you learn in this module?

TESTING / ASSESMENT

- End of Module Self-Assessment Survey anonymous data collection

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MODULE PLAN INFORMATION

Subject/Course: **Promoting Digital Higher Education by Introducing Immersive Learning into Educational Studies**
Stage: **1-4 (Higher Education)**
Module Topic: **3D Educational Content**
Total Workload: **10 hours**

SYLLABUS

- Provide Webinar and Tutorials' documents
- Ensure that students are involved in all activities

LECTURER NOTES

- Provide Webinar and Tutorials' documents
- Ensure that students are involved in all activities
- Define what indicates a successful authoring application

TEACHING METHODS

☐Face to Face Learning
☒Blended Learning
☐On-Line Learning
☒Learning by doing
☐Project-based learning
☒Active learning strategies
☐Peer learning
☒Hands-on learning
☐Collaborative learning

3D Educational Content

DEVICES, SOFTWARE AND HARDWARE

Oculus, desktop and mobile phone/tablet (iOS or Android with access to Apple Store/Google Play). The apps are free to download and use.

MODULE TASK

Students will learn where to find open source educational repositories, apply common creative licences and utilize/manipulate different 3D assets' formats within the project platform. Students will also be exposed to a 3D authoring toolkit and how to embed XR experiences within a VLE.

MODULE LEARNING OUTCOMES

By completing this module, students will achieve learning outcomes and learn skills such as:

- Locate open source educational repositories.
- Familiarize with common creative licences.
- Utilise/manipulate 3D assets.
- Experience an AR authoring toolkit.

WORKLOAD: 9.6 HOURS

4 Face-to-Face/Webinars: 4 hours
- Open source educational repositories (1 hour)
- Creative common licences (1 hour)
- Hands-on experiences with 3D assets for the project platform (1 hour)
- Hands-on experiences with authoring toolkit (1 hour)

2 asynchronous Tutorials: 6 hours (3h/tutorial)
- Instructions on where to find existing 3D assets
- Instructions on how to use an authoring toolkit

REFLECTION

- Would you consider using the authoring toolkit within your teaching practices?
- What new did you learn in this module?

TESTING / ASSESMENT

- End of Module Self-Assessment Survey anonymous data collection

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Intellectual Output 2
"XR4Ped Syllabus and Study Course"

MODULE PLAN INFORMATION

Subject/Course: Promoting Digital Higher Education by Introducing Immersive Learning into Educational Studies
Stage: 1-4 (Higher Education)
Module Topic: XR for Schools
Total Workload: 10 hours

SYLLABUS

- Introduce XR for Schools' Curriculum
- Show and practice with existing XR application in Science
- Establish creation of lesson plans and assessment process within XR education for Schools

LECTURER NOTES

- Provide Webinar and Tutorials' documents
- Ensure that students are involved in all activities
- Define what indicates a successful application in XR for Schools
- Inform the teachers' awareness on problem solving techniques utilised in the application through the tutorials

TEACHING METHODS

☐Face to Face Learning
☒Blended Learning
☐On-Line Learning
☒Learning by doing
☐Project-based learning
☒Active learning strategies
☐Peer learning
☒Hands-on learning
☐Collaborative learning

eXtended Reality (XR) for Schools

DEVICES, SOFTWARE AND HARDWARE

Desktop and Mobile phone/tablet (iOS or Android with access to Apple Store/Google Play). The apps are free to download and use.

MODULE TASK

Students will learn about how to utilise XR technologies in Science teaching, through the utilisation of existing application that combines storytelling, scientific method and XR technology to represent scientific models.

MODULE LEARNING OUTCOMES

By completing this module, students will achieve learning outcomes and learn skills such as:

- How to transform storytelling to a re-usable XR application.
- How to show and utilise in the classroom XR technology for Science.
- How to assess the impact of XR technology in the school classroom.

WORKLOAD: 10 HOURS

3 Face-to-Face/Webinars: 4 hours
- Introduction to XR for Schools (1,5 hour)
  (Embedding XR in curriculum, planning process and assessment methodology)
- Showcase of a fully implemented XR application for STEM subject (1,5 hour)
- Showcase the process of lesson plans based on storytelling assessment (1 hour)

6 asynchronous Tutorials: 1 hour (10'/tutorial)
- Instructions for the use of the Educational Toolkit
- Set up of app from Google Play/Apple store
- Instructions for the use of the Augmented Reality Toolkit
- Instructions on use of the digital repository
- Instructions of a set of drama and music kinetic activities in the class
- Instructions on the assessment methodology of the educational toolkit

6 self-learning exercises: 5 hours
- Each tutorial will provide a self-learning exercise for self-practicing activities

REFLECTION

- Can you name at least three apps for Primary School Education?
- Which discipline do you think is most suitable for XR Education?
- Would you consider using the XR app of this module within your teaching practices?
- What new did you learn in this module?

TESTING / ASSESMENT

- End of Module Self-Assessment Survey anonymous data collection

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Promoting Digital Higher Education by Introducing Immersive Learning into Educational Studies

Intellectual Output 2
"XR4Ped Syllabus and Study Course"

MODULE PLAN INFORMATION

Subject/Course: **Promoting Digital Higher Education by Introducing Immersive Learning into VET**
Stage: **post-secondary education**
Module Topic: **XR in VET**
Total workload: **10 hours**

INTRODUCTION

- Introduce XR as a learning tool in VET
- Showcase examples of XR in VET and usecases
- Demonstrate XR hardware

LECTURER NOTES

- Provide Webinar and tutorial documents
- Ensure that students are involved in all activities
- Define what indicates a successful module in XR for VET and the hardware and software that can be utilised
- Inform teacher of challenges and problem solving through the tutorials, in particular the practical tutorials with Hardware and software

TEACHING METHODS

☒Face to Face Learning
☒Blended Learning
☒On-Line Learning
☐Learning by doing
☐Project-based learning

eXtended Reality (XR) in VET

DEVICES, SOFTWARE AND HARDWARE

This module will require access to a VR HMD that can be used in a group setting, and the recommendation is the Oculus Quest.

This module will require access to a Mobile device/tablet (IOS or Android) with access to App Store/Play store

MODULE TASK

Students will learn about utilising XR technology to enhance vocational education and training and the pedagogical value of XR technology as a tool to enhance learning. This will include a range of use cases and learn how XR is being used in both education and industry training around the world. The modules will showcase of suitable hardware, software and applications available to educators for use in VET.

MODULE LEARNING OUTCOMES

By completing this module, students will achieve learning outcomes and learn skills such as:

- How to utilise XR technology in a VET education setting
- Understand the value of XR technology as a tool to enhance learning
- How to identify opportunities in VET to utilise XR as a learning tool
- Understand how XR is being used in industry and vocational training
- How to show and utilise AR in Mechanical Engineering
- How to utilise AR in illustrating theoretical concepts to learners

REFLECTION

- Can you name at least three apps for VET Education?
- Which discipline do you think is most suitable for XR Education in VET?
- What new did you learn in this module?

WORKLOAD

3 Face-to-Face/Webinars: 3 hours
- Pedagogical value of XR learning in VET setting
- Showcase of suitable XR application for use VET learning setting
- Showcase of use-cases in industrial and vocational training

☐Active learning strategies
☐Peer learning
☒Hands-on learning
☐Collaborative learning

4 asynchronous Tutorials: 1 hour (15'/tutorial)
- Practical tutorial to become familiar with XR hardware for VET learning
- Instructions on how to set up an XR application in VET
- Instructions on how to use an XR application in VET
- The use of XR application in different sectors (industry, services, agriculture

6 self-learning exercises: 6 hours
- Each tutorial will provide a self-learning exercise for self-practicing activities.
- Where can XR be implemented in your own education and training subject area to enhance the learning experience?
- Identify the most suitable XR technology and available hardware for this task
- Identify the key features that you require from a software or application to implement this task in your academic subject area.
- Is there an existing software or application on the market that can meet these requirements?

TESTING / ASSESMENT

- End of Module Self-Assessment Survey anonymous data collection

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Promoting Digital Higher Education by Introducing Immersive Learning into Educational Studies

Intellectual Output 2
"XR4Ped Syllabus and Study Course"

MODULE PLAN INFORMATION

Subject/Course: Promoting Digital Higher Education by Introducing Immersive Learning into Educational Studies
Stage: adult/general education
Module Topic: XR for Schools
Total Workload: 10 hours

SYLLABUS

- Introduce XR for adult/general education
- Establish creation of lesson plans and assessment process within XR education for adult/general education

LECTURER NOTES

- Provide Webinar and Tutorials' documents
- Ensure that students are involved in all activities
- Define what indicates a successful application in XR for adult/general education
- Inform the teachers' awareness on problem solving techniques utilised in the application through the tutorials

TEACHING METHODS

☒Face to Face Learning
☒Blended Learning
☐On-Line Learning
☒Learning by doing
☐Project-based learning
☒Active learning strategies
☐Peer learning
☒Hands-on learning
☐Collaborative learning

eXtended Reality (XR) for adult/general education

DEVICES, SOFTWARE AND HARDWARE

Desktop and Mobile phone/tablet (iOS or Android with access to Apple Store/Google Play). The apps are free to download and use.

MODULE TASK

Students will learn about how to utilise XR technologies in Science teaching, through the utilisation of existing application that combines storytelling, scientific method and XR technology to represent scientific models.

MODULE LEARNING OUTCOMES

By completing this module, students will achieve learning outcomes and learn skills such as:

- How to show and utilise in the classroom XR technology for adult/general learning.
- How to assess the impact of XR technology in the adult/general learning.
- How to promote lifelong learning with the use of XR technology.

WORKLOAD: 10 HOURS

3 Face-to-Face/Webinars: 4 hours
- Introduction to XR for adult/general education (2 hour)
- Showcase of a fully implemented XR application for adult/general education (2 hour)

6 asynchronous Tutorials: 1 hour (10'/tutorial)
- A selection of 6 different areas of interest, for example wellbeing, language learning, meditation, etc)

6 self-learning exercises: 5 hours
- Each tutorial will provide a self-learning exercise for the same areas of interest as tutorials.

REFLECTION

- What are the specific aspects, related to the adult education, adults and their life?
- Can you think of additional use cases, that are also related to adult education?
- In what way do you thing that XR is better than the traditional way of teaching for adult education?
- For what applications of use cases the usage of XR is justified, when you consider the additional time and costs it brings?

TESTING / ASSESMENT

- End of Module Self-Assessment Survey anonymous data collection

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Promoting Digital Higher Education by Introducing Immersive Learning into Educational Studies

Intellectual Output 2
"XR4Ped Syllabus and Study Course"

MODULE PLAN INFORMATION

Subject/Course: Promoting Digital Higher Education by Introducing Immersive Learning into Educational Studies
Stage: 1-4 (Higher Education)
Module Topic: XR in Higher Education
Total Workload: 10 hours

SYLLABUS

- Introduce XR for Higher Education
- Showcase examples of XR in HE

LECTURER NOTES

- Provide Webinar and Tutorials' documents
- Ensure that students are involved in all activities
- Define what indicates a successful application in XR for HE
- Inform the teachers' awareness on problem solving techniques utilised in the application through the tutorials

TEACHING METHODS

☐Face to Face Learning
☒Blended Learning
☐On-Line Learning
☒Learning by doing
☐Project-based learning
☒Active learning strategies
☐Peer learning
☒Hands-on learning
☐Collaborative learning

eXtended Reality (XR) in Higher Education

DEVICES, SOFTWARE AND HARDWARE

This module will require access to a VR HMD that can be used in a group setting, and the recommendation is the Oculus Quest. Learners required to organise and host their own tutorial on VR hardware for a group of learners.

MODULE TASK

Students will learn about how to utilise XR technology in a higher education setting. They will become familiar and competent with XR technology as a learning tool, and its application in a number of example academic disciplines. Students will have the competence and ability to demonstrate and teach other students on how to utilise this technology as a learning tool.

MODULE LEARNING OUTCOMES

By completing this module, students will achieve learning outcomes and learn skills such as:

- How to utilise XR technology in Higher education setting.
- Understand the value of XR technology as a tool to enhance learning.
- How to demonstrate to other the use of XR as a learning tool.
- How to identify opportunities in higher education to utilise XR as a learning tool.
- How to understand the impact of XR technology in HE.
- How to show and utilise AR in Business related subject.
- How to show and utilise VR in Veterinary subject.
- How to show and utilise VR in Civil Engineering subject .

WORKLOAD: 10 HOURS

<u>3 Face-to-Face/Webinars: 3 hours</u>
- Showcase of a fully implemented XR application for Business subject (1 hour)
- Showcase of a fully implemented VR aplication in Civil Engineering subject (1 hour)
- Showcase of a fully implemented XR application for Veterinary subject (1 hour)

<u>6 asynchronous Tutorials: 1 hours (10'/tutorial)</u>
- Practical tutorial to become familiar with VR hardware
- Guideline on to demonstrate VR Hardware to a group of learners
- Instructions on how to set up an XR application in HE

<u>6 self-learning exercises: 6 hours</u>
- Each tutorial will provide a self-learning exercise for self-practicing activities

REFLECTION

- Which discipline do you think is most suitable for XR in HE?
- What new did you learn in this module?
- Where can XR be implemented in your own academic subject area to enhance the learning experience?
- Identify the most suitable XR technology and available hardware for this task
- Identify the key features that you require from a software or application to implement this task in your academic subject area.
- Is there an existing software or application on the market that can meet these requirements?

TESTING / ASSESMENT

- End of Module Self-Assessment Survey anonymous data collection

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Promoting Digital Higher Education by Introducing Immersive Learning into Educational Studies

Intellectual Output 2
"XR4Ped Syllabus and Study Course"

MODULE PLAN INFORMATION

Subject/Course: Promoting Digital Higher Education by Introducing Immersive Learning into Educational Studies
Stage: higher education
Module Topic: XR for social pedagogy
Total Workload: 10 hours

SYLLABUS

- Introduce XR for social pedagogy
- Show and practice with existing XR applications in social pedagogy

LECTURER NOTES

- Provide Webinar and Tutorials' documents
- Ensure that students are involved in all activities
- Define what indicates a successful application in XR for social pedagogy
- Inform the teachers' awareness on problem solving techniques utilised in the application through the tutorials

TEACHING METHODS

☒Face to Face Learning
☒Blended Learning
☐On-Line Learning
☒Learning by doing
☐Project-based learning
☒Active learning strategies
☐Peer learning
☒Hands-on learning
☐Collaborative learning

eXtended Reality (XR) for social pedagogy

DEVICES, SOFTWARE AND HARDWARE

Oculus, desktop and mobile phone/tablet (iOS or Android with access to Apple Store/Google Play). The apps are free to download and use.

MODULE TASK

Students will learn about how to utilise XR technologies in social pedagogy, arts and culture through the utilisation of application that combines topics form social pedagogy, arts and culture and XR technology to represent scientific models.

MODULE LEARNING OUTCOMES

By completing this module, students will achieve learning outcomes and learn skills such as:

- Utilise the XR technology to address issues within social pedagogy.
- Showcase with existing technologies, how to advance educational pedagogy for children with learning difficulties and disabilities (ADHD, ASD, dyslexia etc.).

WORKLOAD: 10 HOURS

2 Face-to-Face/Webinars: 4 hours
- Introduction to XR for social pedagogy (2 hour)
- Using XR for students with learning difficulties (2 hour)

6 asynchronous Tutorials: 1 hours (10'/tutorial)
- A set of sessions in different subject within social pedagogy (empathy, awareness of learning difficulties, positive behaviour in classrooms etc.)

6 self-learning exercises: 5 hours
- Each tutorial will provide a self-learning exercise for self-practicing activities

REFLECTION

- Would you consider social pedagogy in XR impactful?
- Can you name at least three app for social pedagogy in XR?
- What new did you learn in this module?

TESTING / ASSESMENT

- End of Module Self-Assessment Survey anonymous data collection