SCHOOL	APPLIED ARTS & CULTURE		
DEPARTMENT	GRAPHIC AND VISUAL COMMUNICATION DESIGN		
LEVEL OF STUDIES	Undergraduate		
COURSE CODE	**N1-7140**	**SEMESTER**	**7**
COURSE TITLE	**INNOVATIVE PACKAGING APPLICATIONS (Interactive-Intelligent Packaging)**		

INDEPENDENT TEACHING ACTIVITIES *if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits*	**WEEKLY TEACHING HOURS**	**CREDITS**
Lectures	2	4
Workshop	2	2
Add rows if necessary. The organization of teaching and the teaching methods used are described in detail at (d).	4	6

COURSE TYPE *general background, special background, specialized general knowledge, skills development*	MEY
PREREQUISITE COURSES:	
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	GREEK
IS THE COURSE OFFERED TO ERASMUS STUDENTS	YES (in English)
COURSE WEBSITE (URL)	https://eclass.uniwa.gr/courses/TGT135/

(1) LEARNING OUTCOMES

Learning outcomes

The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.

Consult Appendix A

- *Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area*
- *Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B*
- *Guidelines for writing Learning Outcomes*

This course is an introduction to the concepts, methodologies and analysis of operating models of technology aimed at printing antenna or memory and other smart systems for various modern printing applications.
Upon successful completion of the course the student will be able to:
- Describe, distinguish and explain the basic and critical concepts, theories and techniques of conventional printing for the evolution of the conventional process into a hybrid process.
- To understand the function of a hybrid publication in combination with conventional packaging.
- To co-work with other students to develop the necessary material in order to present a project on relevant topics.

General Competences

Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?

Search for, analysis and synthesis of data and information,
Project planning and management
Respect for difference and multiculturalism

with the use of the necessary technology *Adapting to new situations* *Decision-making* *Working independently* *Team work* *Working in an international environment* *Working in an interdisciplinary environment* *Production of new research ideas*	*Respect for the natural environment* *Showing social, professional and ethical responsibility and sensitivity to gender issues* *Criticism and self-criticism* *Production of free, creative and inductive thinking* *……* *Others…* *…….*

- Working in an interdisciplinary environment
- Produce new research ideas
- Decision-making
- Working autonomously
- Teamwork

(2) SYLLABUS

- Imprint of conventional packaging
- Analysis of the elements that form an intelligent packaging
- Classification of the elements for the evaluation of the application for evolution
- Development of production flow into conventional and smart "baseline" capture models "conceptual/functional/production flow"
- Antennas and electronic wireless communication
- New electronic communication systems with mobile phone "NFC" RFID systems
- Substrates and combinations of conventional and 'smart' conductive inks, communication protocols and compatibility characteristics, work requirement documentation, 'work model', cost criteria for smart packaging
- Management and innovation
- Benefits and concerns of smart packaging "cloud, open sources,..."

(3) TEACHING and LEARNING METHODS - EVALUATION

DELIVERY Face-to-face, Distance learning, etc	In the classroom (Face-to-face)
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY Use of ICT in teaching, laboratory education, communication with students	**Additional distance learning process through the e-class platform** **Open courses** **https://ocp.teiath.gr/courses/TGT_UNDER108/**
TEACHING METHODS The manner and methods of teaching are described in detail. Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic creativity, etc. The student's study hours for each learning activity are given as well as the hours of non-directed study according to the principles of the ECTS	

Activity	*Semester workload*
Course total	***150***

STUDENT PERFORMANCE EVALUATION Description of the evaluation procedure	I. Final Examinations including short answer and

Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open- ended questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory work, clinical examination of patient, art interpretation, other Specifically-defined evaluation criteria are given, and if and where they are accessible to students.	development questions. II. It is also possible to assess individual and/or group project alongside the written examinations, which will not exceed 40% of the final theory grade. This part is optional and acts additional to the students' grade. III. For the laboratory the evaluation will be done through written projects and exercises. Examination of the student's portfolio at the end of the semester through oral support and a short written test and/or oral examination will take into account the overall progress of the students' work during the semester.

(4) ATTACHED BIBLIOGRAPHY

Suggested bibliography:

1. Μάριος Τσιγώνιας, Αναστάσιος Ε. Πολίτης, Αντώνης Τσιγώνιας, Σύγχρονες Εφαρμογές Συσκευασίας, Σημειώσεις του μαθήματος, 2019
2. Printed Electronics, H. Harrop, IDTECH EX, Cambridge, 2007
3. Smart Packaging Applications, Raghou Das, Report 2006, IDTECH EX, Cambridge
4. Smart Pack. AIPIA. Active Intelligent Pack Industry Association. Eef . Holland Package international conference
5. Print Becomes Electronics. Arved C. Hubler / 2001/ CHEMNITZ UNIVERSITY OF TECHNOLOGY/ 2008
6. Intelligent Packaging, İbrahim Sani Özdemir -Published Online: 20 NOV 2012 / 9781444355321. ch29 <Handbook of Food Safety Engineering>