



MEĐIMURSKO VELEUČILIŠTE U ČAKOVCU

MEĐIMURJE UNIVERSITY OF APPLIED SCIENCES IN ČAKOVEC

COURSE SYLLABUS

ACADEMIC YEAR: 2025/2026

1. GENERAL COURSE INFORMATION

| | | | | |
|--------------------------------|---|--|---|--------|
| 1.1 Course name | Multimedia | | | |
| 1.2 Study program/s | Undergraduate Professional Study Programme Computer Engineering | | | |
| 1.3 Course status (O,E) | E | 1.6 Mode of instruction (number of hours) | Lectures | 30 |
| 1.4 Course code | | | Exercises | 30 |
| 1.5 Course abbreviation | | | Seminars | |
| 1.6 Semester | IV | | E-learning | Merlin |
| 1.7 ECTS | 4 | 1.7 Place and time of instruction | The premises of the Međimurje University of Applied Sciences in Čakovec, according to the schedule published on the website | |

2. TEACHING STAFF

| | | | |
|---------------------------------------|-----------------------------|----------------|------------------------|
| 2.1 Course leader/s-title | PhD, Sanja Obradović, prof. | contact | sanja.obradovic@mev.hr |
| | | contact | |
| 2.2 Assistant/s- title | | contact | |
| | | contact | |
| 2.3 Instruction held by- title | PhD, Sanja Obradović, prof. | contact | sanja.obradovic@mev.hr |
| 2.4 Course leader/s-title | | contact | |

3. COURSE DESCRIPTION

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|--|---|
| 3.1. Course goals | After completing the course, the student will be able to recognize various aspects of multimedia in computer systems. Knowledge in the field of multimedia is acquired and the student is trained to perform multimedia tasks independently. |
| 3.2 Prerequisites | None |
| 3.3 Course outcomes | After successfully completing the course, students will be able to: O1 - Judge the digitization and compression of multimedia data in different media, depending on the file size and end use of each media O2 - Select the optimal colour system for each medium given the differences between individual systems O3 - Choose between vector, raster and 3D graphics depending on the medium in which they are used O4 - Create a 3D model by selecting 3D modelling techniques O5 - Create a multimedia presentation, 3D model and its animation |
| 3.4 Contribution of the course to the study program | SO4 Apply communication and professional ethics SO5 Identify trends in ICT technologies in the domestic and international markets SO6 Analyse user needs (research and detect data sources, currently present business systems, technological limitations, specific business environment characteristics) SO16 Develop web and mobile projects, applying advanced technologies, and connecting with databases using modern methods and tools |

| 3.5 Course content | The course presents contents related to multimedia and various media and their specifics from the aspect of digital multimedia. The contents are processed by comparing different types of digital media, their digitization and compression, and the advantages and disadvantages of individual media and multimedia architectures are stated. The teaching units present contents related to digitalization, compression, vector, raster and 3D graphics, video and sound. 3D models are practically created and animated with the addition of other media. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|---|----------------------------|-----------------|------------------|-------|--------------------|---|------------------------|------------|--------------------------------------|------------------------|-----------|--------|-------------------------------|--|--|----------------------|-----------------|-----------------|----------------|-------|-----------|----------------|-----|----|----------------|-----|-----------|--|---|--|--------------|-----|-----------|---------------|-------------|------------|--|---|-----------|----|----|----|--|----|-----------|--|--|--|----|----|--------------|----|----|----|----|--|
| 3.6 Types of coursework | x | Lectures | X | Exercises | x | Blended e-learning | X | Individual activities | Laboratory | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | Seminars and workshops | x | Distant learning | | Field classes | x | Multimedia and network | Mentorship | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | Other | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3.7 Language of instruction | Croatian | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3.8 Monitoring students' work (enter the number of ECTS credits for each activity so that the total number of ECTS credits is equal to the total ECTS value of the course, 1 ECTS = 30 hours) | 2 | Class attendance | | Seminars | | Research | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 0,5 | Midterm exams/written exam | | Project | | Essay | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | Oral exam | 0,5 | Practical task | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | <table border="1" data-bbox="603 837 1324 1187"> <thead> <tr> <th>Activity specification</th> <th>Percent %</th> <th>Points</th> </tr> </thead> <tbody> <tr> <td colspan="3" style="text-align: center;">Assessment during instruction</td> </tr> <tr> <td>Class activity tasks</td> <td>10%</td> <td>10</td> </tr> <tr> <td>Practical task</td> <td>30%</td> <td>30</td> </tr> <tr> <td>Midterm exam 1</td> <td>30%</td> <td>30</td> </tr> <tr> <td>Midterm exam 2</td> <td>30%</td> <td>30</td> </tr> <tr> <td colspan="3" style="text-align: center;"><i>Exam assessment for the students who failed to fulfil all the obligatory requirements during the semester</i></td> </tr> <tr> <td>Written exam</td> <td>60%</td> <td>60</td> </tr> <tr> <td>Total:</td> <td>100%</td> <td>100</td> </tr> </tbody> </table> | | | | | | | | | | Activity specification | Percent % | Points | Assessment during instruction | | | Class activity tasks | 10% | 10 | Practical task | 30% | 30 | Midterm exam 1 | 30% | 30 | Midterm exam 2 | 30% | 30 | <i>Exam assessment for the students who failed to fulfil all the obligatory requirements during the semester</i> | | | Written exam | 60% | 60 | Total: | 100% | 100 | | | | | | | | | | | | | | | | | | | | |
| | Activity specification | Percent % | Points | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Assessment during instruction | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Class activity tasks | 10% | 10 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Practical task | 30% | 30 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Midterm exam 1 | 30% | 30 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Midterm exam 2 | 30% | 30 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Exam assessment for the students who failed to fulfil all the obligatory requirements during the semester</i> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Written exam | 60% | 60 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Total: | 100% | 100 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1" data-bbox="523 1249 1458 1527"> <thead> <tr> <th colspan="6">Ways of evaluating learning outcomes</th> </tr> <tr> <th></th> <th>Tasks in class</th> <th>Mid-term exam 1</th> <th>Mid-term exam 2</th> <th>Practical work</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>Outcome 1</td> <td></td> <td>5</td> <td>5</td> <td></td> <td>10</td> </tr> <tr> <td>Outcome 2</td> <td></td> <td>5</td> <td></td> <td></td> <td>5</td> </tr> <tr> <td>Outcome 3</td> <td></td> <td></td> <td>5</td> <td></td> <td>5</td> </tr> <tr> <td>Outcome 4</td> <td>10</td> <td>20</td> <td>20</td> <td></td> <td>50</td> </tr> <tr> <td>Outcome 5</td> <td></td> <td></td> <td></td> <td>30</td> <td>30</td> </tr> <tr> <td>Total</td> <td>10</td> <td>30</td> <td>30</td> <td>30</td> <td></td> </tr> </tbody> </table> | | | | | | | | | | Ways of evaluating learning outcomes | | | | | | | Tasks in class | Mid-term exam 1 | Mid-term exam 2 | Practical work | Total | Outcome 1 | | 5 | 5 | | 10 | Outcome 2 | | 5 | | | 5 | Outcome 3 | | | 5 | | 5 | Outcome 4 | 10 | 20 | 20 | | 50 | Outcome 5 | | | | 30 | 30 | Total | 10 | 30 | 30 | 30 | |
| Ways of evaluating learning outcomes | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Tasks in class | Mid-term exam 1 | Mid-term exam 2 | Practical work | Total | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Outcome 1 | | 5 | 5 | | 10 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Outcome 2 | | 5 | | | 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Outcome 3 | | | 5 | | 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Outcome 4 | 10 | 20 | 20 | | 50 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Outcome 5 | | | | 30 | 30 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Total | 10 | 30 | 30 | 30 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p><i>Grading of outcomes (in order to pass the mid-term exam/exam the student must achieve at least 50% points for each learning outcome)</i></p> <p><i>Points Grade</i></p> <p><i>89 – 100 excellent (5)</i></p> <p><i>76 – 88 very good (4)</i></p> <p><i>63 – 75 good (3)</i></p> <p><i>50 – 62 pass (2)</i></p> <p><i>0 – 49 fail (1)</i></p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3.9 Specific features related to taking the course | If a student collects 50% of the points of each outcome, he / she directly takes the exam, if he / she has submitted a practical task. A student cannot take the exam if he / she has not submitted a practical task. The practical task is made according to the instructions published on the Merlin e-learning system and is submitted by placing it on the Merlin. The practical task is submitted at least 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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| | <p>days before the exam. During the exam, it is possible to verbally check the knowledge in the preparation of practical task.</p> <p>If a student does not achieve enough points on the midterm exam, he / she cannot take the next midterm exam.</p> <p>Once achieved points in intermediate exams for each learning outcome are no longer deleted unless the student decides to correct the result for each learning outcome, whereby the points won until then are deleted and newly achieved points for that learning outcome are entered.</p> | |
| 3.10 Students obligations | <ul style="list-style-type: none"> • a full-time student has the right to sit for the exam if he attends classes for a minimum of 70% of the total prescribed number of hours • a full-time student who attends classes from 50 to 70% of the total prescribed number of hours can exercise the right to take the exam by completing additional teaching activities in agreement with the course teacher • a full-time student who attends a certain course for less than 50% of the prescribed number of hours enrolls in the course the following academic year • a part-time student has the right to sit for the exam if he/she attends classes for a minimum of 30% of the total prescribed number of hours • a part-time student who attends classes for 20 to 30% of the total prescribed number of hours can exercise the right to sit for the exam by completing additional teaching activities in agreement with the course teacher • a part-time student who attends the classes of a certain course for less than 20% of the prescribed number of hours re-enrolls in the course the following academic year | |
| 3.11 Written assignments | | |
| 3.12 Required reading | 1. | Tay Vaughan, Multimedia: Making It Work, Ninth Edition 9th Edition, Mc Graw Hill Education, 2014 |
| 3.13 Additional reading | 1. | Nigel Chapman, Jenny Chapman, Digital Multimedia, Wiley, 2009. |
| 4. ADDITIONAL INFORMATION ABOUT THE COURSE | | |
| 4.1 Quality control | The quality of the program, teaching process, teaching skills and level of mastery of the material will be established by conducting a written evaluation based on questionnaires, and in other standardised ways and in accordance with the by-laws of the Međimurje University of Applied Sciences in Čakovec. | |
| 4.2 Contact the teacher | Students can contact the teacher during the office hours and during classes. All other methods of communication are arranged with the teacher. It is also possible to ask questions by e-mail, which will be answered in 48 hours at the latest. It is desirable for students to come as often as possible for any possible questions during the teacher's office hours. | |
| 4.3 Information about the course | It is the obligation of each student to be regularly informed about the course. All notifications about the classes or possible postponement of classes will be posted on the bulletin board and on the website of the University at least 24 hours in advance. | |
| 5. ELABORATION OF THEMATIC UNITS | | |
| Week | Topic | Course outcome |

| | | |
|-----|---|--------|
| 1. | Introduction to course content, the concept of multimedia, history, use of multimedia, multimedia applications and tools, types of multimedia | 01 |
| 2. | Digitization and data compression | 01 |
| 3. | Vector graphics | 01, 03 |
| 4. | Raster graphics, resolution, resampling, compression | 01, 03 |
| 5. | Raster graphics, file types and compression, image data manipulation | 01, 03 |
| 6. | Colours, colour models, ways of defining colours in computer systems | 02 |
| 7. | Colour spaces, channels and colour correction, consistent colour | 02 |
| 8. | Midterm exam 1 | |
| 9. | Video standards, analog and digital video | 01 |
| 10. | Video compression | 01 |
| 11. | Animation | 05 |
| 12. | Sound | 01 |
| 13. | Text | 01 |
| 14. | Final task, examples of finished projects | 05 |
| 15. | Midterm exam 2 | |