# Multimedia Retrieval

<table>
<thead>
<tr>
<th>Module title</th>
<th>Multimedia Retrieval</th>
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<tr>
<td><strong>Module code</strong></td>
<td>Tbd.</td>
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<tr>
<td><strong>Level</strong></td>
<td>Bachelor (B.Sc.)</td>
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<tr>
<td><strong>ECTS credits</strong></td>
<td>5</td>
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<tr>
<td><strong>Duration</strong></td>
<td>2 weeks block course</td>
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<tr>
<th>Module instructor</th>
<th>Tomas Skopal, Charles University, Prague</th>
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<tr>
<td><strong>Lecture type</strong></td>
<td>Lectures + Project consultations</td>
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<tr>
<td><strong>Prerequisite(s)</strong></td>
<td>Programming, basic mathematical ability</td>
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<tr>
<td><strong>Grading</strong></td>
<td>Project defense</td>
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## Objectives

The module introduces to models and techniques of multimedia retrieval.

## Course Outcomes

By the end of the course, students will be able to recognize many facets of content-based multimedia retrieval techniques. They also get a practical experience in a selected subdomain by means of student project.

## Knowledge & Understanding

- General knowledge of content-based multimedia retrieval.
- Detailed pipeline – use case, domain knowledge, feature extraction, retrieval model, indexing, visualization, user feedback, evaluation.

## Skills & Abilities

- a) Navigate in different platforms, interfaces, HCI means and use cases for multimedia retrieval.
- b) Choose suitable model for particular media type and domain;
- c) Formulate search intent (query, browsing, filtering);
- d) Use suitable indexing structure for efficient retrieval.

The course consists of a series of lectures, interleaved with consultations to student projects. The lectures span a variety of multimedia retrieval topics, while the projects aim to focus students more deeply to a particular topic by means of a hands-on experience (project implementation).

## Content

1. Web platforms for retrieval and sharing of multimedia content.
2. Web interfaces, modalities, and the quality of retrieval.
3. Text-based and bag-of-words models.
4. Similarity search model - models and queries.
5. Similarity search model - popular similarity functions.
8. Local image features - analytic models.
9. Local image features - deep learning.
10. Video retrieval techniques.
11. Feature extraction from audio, music and melody.
13. Metric access methods.

## Textbook/teaching material

- Course slides
- Research papers and monographs (tbd)

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Note: this is not the official course descriptor according to the "Studien- und Prüfungsordnung" (SPO)