

- Christine Maher 4-1083
- Nardine Basta 4-626
- Frederic Morcos 4-1805

- **NOTE:** Foreign keys are marked in **bold**.

- user_account (id, user_name, password, address, first_name, last_name, passport#)
- student (id, birth_date, achieved_educational_degrees, occupation)
- attends (id, course_#)
- attends_comments (id, course_#, comment)
- student_submits (student.id, course_#, instructor.id, report)
- employee (id, hired_date, career_start_date, job_description)
- instructor (id, author_identifier, academic_degree, working_rate_per_hour, **moderator.id**)
- moderator (id, date_of_acquiring, degree_name)
- user_phone (id, phone)
- user_email (id, email)
- course (course_#, title, level, duration, **instructor.id**)
- moderator_submits (course_#, instructor.id, moderator.id, report)
- exam (exam_#, course_#, #_of_questions, time, date)
- topic (topic_id, title, description)
- contains (topic_id, course_#)
- tutorial (tutorial_id, topic_id)
- material_item (filename, tutorial_id, topic_id)
- project (filename, tutorial_id, topic_id, problem_description, requirements, tools)

- presentation (filename, tutorial_id, topic_id, subject)
- assignment (filename, tutorial_id, topic_id, #_of_exercises, description)
- question (question_#, topic_id, text, solution_time, #_of_marks)
- exam_consists (question_#, exam_#, course_#, topic_id)
- assignment_consists (questions_#, filename, tutorial_id, assignment.topic_id, question.topic_id)
- external_resources (id, author_identifier)
- book (isbn, id, edition)
- book_author (isbn, id, author)
- website (url, id)
- publication (publication_#, id, title, date_of_publication)
- publication_author (publication_#, id, author)
- author (author_identifier)
- creates (author_identifier, filename, tutorial_id, topic_id)

- book_author.isbn references book.isbn
- book_author.id references book.id
- book.id references external_resource.id
- website.id references external_resource.id
- publication.id references external_resource.id
- student.age = current_date – student.birth_date
- student.id references user_account.id
- employee.id references user_account.id
- employee.years_of_experience = current_date – employee.career_start_date
- moderator.id references user_account.id

- instructor.id references user_account.id
- attends.id references student.id
- attends.course_# references course.course_#
- attends_comments.id references student.id
- attends_comments.course_# references course.course_#
- student_submits.student.id references student.id
- student_submits.instructor.id references instructor.id
- student_submits.course_# references course.course_#
- instructor.moderator.id references moderator.id
- user_phone.id references user_account.id
- user_email.id references user_account.id
- course.instructor.id references instructor.id
- moderator_submits.course_# references course.course_#
- moderator_submits.instructor.id references instructor.id
- moderator_submits.moderator.id references moderator.id
- exam.couse_# references course.course_#
- contains.topic_id references topic.topic_id
- contains.course_# references course.course_#
- tutorial.topic_id references topic.topic_id
- material_item.tutorial_id references tutorial.tutorial_id
- project.tutorial_id references tutorial.tutorial_id
- presentation.tutorial_id references tutorial.tutorial_id
- assignment.tutorial_id references tutorial.tutorial_id
- exam_consists.text references question.text

- `exam_consists.exam_#` references `exam.exam_#`
- `exam_consists.course_#` references `course.course_#`
- `exam_consists.topic_id` references `topic.topic_id`
- `exam.duration` = sum of all questions' duration times
- `assignment_consists.text` references `question.text`
- `assignment_consists.filename` references `assignment.filename`
- `assignment_consists.tutorial_id` references `tutorial.tutorial_id`
- `assignment.total_solution_time` = sum of all questions' duration times
- `publication_author.publication_#` references `publication.publication_#`
- `publication_author.id` references `publication.publication_#`
- `creates.author_identifrier` references `author.author_identifrier`
- `creates.filename` references `material_item.filename`
- `creates.tutorial_id` references `tutorial.tutorial_id`
- `creates.topic_id` references `material_item.topic_ida`
- assumption: each question covers at most 1 topic.