

You have been tasked with creating a Python program for a Learning Management System (LMS) to manage students, courses, and enrollments. Your program should utilize classes and associations to model the following entities:

Create a class `Student` that represents a student. The `Student` class should have the following attributes:

`student_id` (int): A unique student ID.

`name` (string): The student's full name.

`enrollments` (a list of `Enrollment` objects): A list of courses in which the student is enrolled.

Create a class `Course` that represents a course. The `Course` class should have the following attributes:

`course_code` (string): A unique course code.

`course_name` (string): The name of the course.

`instructors` (a list of strings): A list of instructor names for the course.

`enrollments` (a list of `Enrollment` objects): A list of students enrolled in the course.

Create a class `Enrollment` to associate students with courses. The `Enrollment` class should have the following attributes:

`student` (a reference to a `Student` object): The student enrolled in the course.

`course` (a reference to a `Course` object): The course in which the student is enrolled.

`progress` (float): The student's progress in the course as a percentage (0.0 to 100.0).

Implement a method `enroll(student, course)` in the LMS system that enrolls a student in a course. This method should create an `Enrollment` object and add it to both the student's enrollments list and the course's enrollments list.

Implement a method `update_progress(student, course, progress)` in the LMS system that allows updating a student's progress in a course. This method should search for the enrollment with the specified student and course, and update the progress accordingly.

Write a function `print_student_enrollments(student)` that takes a `Student` object as an argument and prints the student's name, student ID, and a list of courses they are enrolled in along with their progress in each course.

Your program should demonstrate how students can enroll in courses, update their progress in those courses, and print their enrollments. Create at least two `Student` objects, three `Course` objects, enroll students in courses, and update their progress in each course.

Write the Python program that implements the above requirements and demonstrates the functionality of your classes.

Note: Include appropriate constructor methods (`init`) for the classes and handle any necessary error checking.

Sample Solution:

```
class Student:
    def __init__(self, student_id, name):
        self.student_id = student_id
        self.name = name
        self.enrollments = []

class Course:
    def __init__(self, course_code, course_name, instructors):
        self.course_code = course_code
        self.course_name = course_name
        self.instructors = instructors
        self.enrollments = []

class Enrollment:
    def __init__(self, student, course, progress=0.0):
        self.student = student
        self.course = course
        self.progress = progress

def enroll(student, course):
    enrollment = Enrollment(student, course)
    student.enrollments.append(enrollment)
    course.enrollments.append(enrollment)

def update_progress(student, course, progress):
    for enrollment in student.enrollments:
        if enrollment.course == course:
            enrollment.progress = progress

def print_student_enrollments(student):
    print(f"Student ID: {student.student_id}")
    print(f"Student Name: {student.name}")
    print("Enrollments:")
    for enrollment in student.enrollments:
        print(f"Course: {enrollment.course.course_name}")
        print(f"Course Code: {enrollment.course.course_code}")
        print(f"Progress: {enrollment.progress}%")
        print("Instructors:", ", ".join(enrollment.course.instructors))
    print("")

# Create students
student1 = Student(1, "Timo")
student2 = Student(2, "Phong")

# Create courses
course1 = Course("CS101", "Introduction to Python", ["Chau"])
course2 = Course("CS202", "Physics", ["Timo"])
course3 = Course("CS303", "Smart IoT", ["Kimmo"])

# Enroll students in courses
enroll(student1, course1)
enroll(student1, course2)
enroll(student2, course1)
enroll(student2, course3)

# Update progress
update_progress(student1, course1, 70.5)
update_progress(student1, course2, 85.0)
update_progress(student2, course1, 60.0)
update_progress(student2, course3, 75.5)

# Print student enrollments
print_student_enrollments(student1)
print_student_enrollments(student2)
```