

# Curriculum syllabus reform from the perspective of engineering education professional certification

-- "WeChat Platform Development" course as an example

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**Abstract:** Comrade Xi Jinping pointed out: "Our need for higher education is more urgent than ever, and our thirst for scientific knowledge and outstanding talents is stronger than ever." necessity and urgency. In 2006, my country started the professional accreditation of engineering education. It takes the international integration of engineering education as a breakthrough, and improves the quality by strengthening the development of connotation. It has played an important role in leading and demonstrating It has played an important role in the strengthening of meaning, which has been proved by practice in the past 10 years. This paper takes the course "WeChat Platform Development" selected by the software engineering major as the main research object, and aims to provide necessary theoretical support and practical guidance for the construction of other curriculum systems in the process of engineering education certification for software engineering majors. Mainly, under the support of the three educational concepts of student-centered, output-oriented, and continuous improvement, it solves the problems related to the adaptability of students, the effectiveness of the curriculum, and the satisfaction of students after learning in the construction of the relevant software engineering curriculum system. This paper starts from the construction of the "WeChat Platform Development" course system for software engineering majors, the formulation of course syllabus, the achievement of course teaching objectives, and the design of relevant course assessments to carry out course teaching reform. The achievement of the teaching goal corresponds to the achievement of the graduation goal and then to the achievement of the training goal as the evaluation standard of the course. Reflecting how well students have learned, based on the achievement of the teaching objectives of the course and the output of the students as the quality evaluation, the relevant course files are formulated, and the plan is given to reflect the concept of continuous improvement in engineering education certification.

**Keywords:** Engineering Education Certification; Course reform; WeChat platform development.

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## 1. Introduction

On June 2, 2016, my country officially joined the Washington Accord. The agreement clearly states that undergraduate engineering education is positioned to develop students' ability to "solve complex engineering problems." At present, the research based on undergraduate engineering education mainly starts from its basic orientation, the basic requirements of professional education, the proposal of relevant standards and the design of relevant courses. The current research starts from the whole of a certain major, but there are few researches on the teaching reform of a single course, especially the theoretical support research on the teaching reform of the relevant curriculum system based on the school's application-oriented university philosophy. At present, the school's curriculum construction-related course status, teaching objectives, teaching content, teaching requirements, teaching environment arrangements, etc. are still using the previous old set of content [1], so the proposal in this paper can provide theoretical support and practice for the course design of relevant engineering education certification majors guide.

## 2. Curriculum Reform Implementation Plan

The implementation plan of this course reform research is mainly divided into six parts: pre-class research, syllabus formulation, teaching process reform, course time allocation,

course assessment, and course evaluation [2]. Each part must correspond to the requirements of engineering education professional certification to ensure that the reform of this course is in line with the standards required by the relevant engineering education certification courses.

### 2.1. Preparation before class

Conduct adequate pre-course research prior to the start of the course. It is necessary to study what the corresponding major of this course is, how the talent training plan for related majors is formulated, what is the curriculum system, what kind of graduation requirements need to be met for graduation of this major, and what aspects does this course provide for graduation requirements support. Whether the supported graduation requirements can correspond to the achievement of the corresponding talent training goals. This part can be carried out by issuing relevant questionnaires, studying professional personnel training programs before class, etc.

### 2.2. Curriculum Reform

Reform the syllabus of relevant courses, including how to formulate the syllabus. The formulation of the syllabus also needs to start from the professional talent training plan, and the achievement of the teaching objectives in the course needs to be demonstrated in detail. For example, the teaching objectives of the "WeChat Platform Development" course should be mapped with the graduation objectives, and consistency and completeness should be checked when specifying the course objectives. In the course syllabus, each

chapter, each knowledge point and even each case experiment should be designed in detail for the cultivation of students' abilities.

### 2.3. Teaching Process Reform

Reform the teaching process. In the teaching process, it is necessary to consider whether the practical teaching of the curriculum is student-centered and whether there are ideological and political elements integrated into the relevant curriculum. For example, when introducing "what is a WeChat applet", you can start from the "Yuekang Code" and other commonly used applet programs to conduct course ideology and politics, you can hand over the classroom to students, and let students search whether the teaching content is the current mainstream. technology, etc. During the implementation of courses with strong practicality such as "WeChat Platform Development", it is recommended to use methods such as case-based teaching. Through relevant practical application cases, the course knowledge points are taught to students while improving students' practical application ability.

### 2.4. Teaching content reform

Reform the course-related time allocation and teaching content [3]. We adopt a case-based teaching method in the course of "WeChat Platform Development", and the cases used in teaching need to be updated in real time. How long is each case allocated to explain, whether the learning through the case meets the needs of future enterprises, etc., all require long-term expert and student argumentation to draw conclusions rather than static. It is also a matter of fit within the accreditation of engineering education, ensuring that what students learn is adaptable to industry needs. Therefore, the specific case duration and case content need to be updated in real time and continuously improved.

### 2.5. Curriculum Assessment Reform

Reforms to curriculum assessment. In the "WeChat Platform Development" course, the course assessment is no longer a single paper-based test. The assessment of the course needs to be designed around the achievement of teaching objectives, which can be done through comprehensive case studies and procedural assessments. After the completion of each case, a corresponding record of the students' achievement can be made, that is, the commonly used unit tests and other methods to comprehensively evaluate the students' course learning.

### 2.6. Curriculum Evaluation Reform

Reforms to curriculum evaluation. In the past, the traditional course evaluation was related to the evaluation of the teachers of the course. However, in order to meet the relevant teaching objectives of this course, it actually needs to include more aspects. We will use professional course evaluation software or system in the course evaluation of "WeChat Platform Development", including not only the evaluation of students, but also the evaluation of enterprises engaged in related work after graduation. How well students are learning, what problems exist in teaching, how to make improvements in the follow-up and other suggestions from students, and whether there is improvement in this course in the next semester or how to improve it in the next round can all be reflected through the course evaluation. The establishment of a continuous improvement mechanism in

engineering education certification can be achieved through the reform of relevant course evaluation.

## 3. Specific reform measures

In response to the above-mentioned relevant reform plans, we have re-formulated the teaching content of the teaching syllabus of the course "WeChat Platform Development".

### 3.1. Course case show

We have designed relevant course teaching cases according to the teaching requirements of "Engineering Education Professional Certification". The screenshot of the e-commerce shopping WeChat applet case is shown in Figure 1.

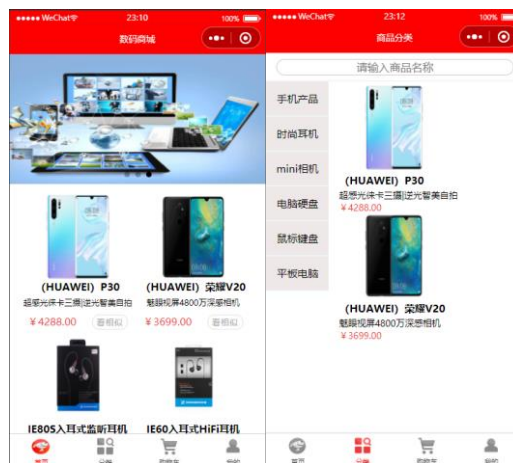


Fig.1 E-commerce shopping WeChat applet

### 3.2. Course targets

Under the "Engineering Education Professional Certification" system of software engineering major, the course objectives to be achieved by the "WeChat Platform Development" course mainly include: (1) Basic knowledge and skills of WeChat platform development; (2) Technical framework and development of WeChat platform development process; (3) the quality of teamwork and project management; (4) the ability to rapidly develop software [4, 5]. The specific course objectives and graduation requirements for your corresponding index points are shown in Table 1.

Table 1. Course objectives correspond to graduation requirements index points

Course targets	Graduation Requirements
Curriculum Objective 1 Curriculum Objective 2	1-1 Be able to apply mathematics, natural sciences, and computer fundamentals and expertise to the rational formulation of complex engineering problems in computer applications.
Curriculum Objective 3 Curriculum Objective 4	3-1 Master the basic methods of project scheme design and software module design in the field of software engineering, and understand various influencing factors in the design process.

## 4. Conclusions

This paper takes the course "WeChat Platform Development" as an example from the perspective of "Engineering Education Professional Certification", and proposes a relevant course teaching reform plan. It mainly includes six parts: pre-class research, syllabus formulation, teaching process reform, course time allocation, course

assessment, and course evaluation. At the same time, this paper gives the corresponding "WeChat Platform Development" course case and course objectives, and obtains the theoretical and practical significance of the reform through the reform of the relevant course content, as well as the relevant issues that need to be paid attention to in different stages of the course reform. It mainly reflects the three concepts of "student-centered, output-oriented, and continuous improvement". Through the research of this paper, it can provide theoretical guidance for other curriculum reforms in the curriculum system of "Engineering Education Professional Certification".

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