



# Development of an Ideological and Political Online Learning System for College English Courses Based on Python

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**Abstract.** In order to promote the teaching reform of English majors in colleges and universities, the training goal of all-round development of English talents is achieved through the ideological and political teaching of online college English courses. This system uses the Python language to connect to the MySQL database on the Django framework, and uses Nginx and uWSG to deploy the server. Based on curriculum ideology and politics, this paper explores the strategies of ideological and political content construction in English course teaching materials, and promotes the implementation of ideological and political education in college English courses. The content of ideological and political English courses is compiled according to the ways and characteristics of students' contact and access to resources, presented through text, images, audio and video and other multimodalities, and spread and shared in specific education and teaching with the help of network platform media. By integrating the educational resources of English majors and integrating ideological and political elements such as value guidance and moral cultivation, an online learning platform for ideological and political college English courses in the new era will be created, so that knowledge imparting and ideological and political education will resonate at the same frequency, so as to realize the promotion of "independent development". The goal of the fundamental educational mission of "Deshuren".

**Keywords:** Python · College English · course ideology and politics · online learning

## 1 Introduction

In 2020, the Ministry of Education issued the "Guidelines for the Ideological and Political Construction of Colleges and Universities" to comprehensively promote the ideological and political construction of colleges and universities, and give full play to the educational role of each course. As Comrade Xi Jinping emphasized: "The ideological and political work should run through the whole process of education and teaching, and make good use of classroom teaching as the main channel. All kinds of courses must go in the same direction as the ideological and political theory courses to form a synergistic effect" [1]. It can be seen that in professional courses It is extremely necessary to excavate, integrate,

integrate and run through ideological and political education in teaching. College English is a public basic course in colleges and universities. It has a high degree of general knowledge, a wide audience and strong practicability, it is an important part of higher education.

A lot of knowledge is covered in college English textbooks, which can be organically combined with the content of ideological and political education, so that the ideological and political courses of English courses and ideological and political courses can go in the same direction, forming a synergistic effect. The ideological and political teaching of college English courses has rich materials, which has laid a solid foundation for the full play of the effect of collaborative education. However, in the process of English teaching, the deepening of learning will gradually introduce culture, which will then affect students' thinking, such as the emergence of foreign worship, the deviation of their own values, cultural lack of self-confidence and other problems. The ideological deviation of college students. To cultivate contemporary college students into English professionals with ideals and aspirations for the country. Therefore, it is necessary for English teachers to carry out curriculum ideological and political education for students. Nowadays, college English teachers have made some attempts at ideological and political teaching in college English courses, but in the actual teaching process, because the teaching mode and methods rely on the implementation of fixed syllabus and the selection of teaching materials, the teaching method is rigid and difficult to change. It is difficult to dig deep into the ideological and political connotations in English textbooks. It is only to imitate some theoretical knowledge of ideology and politics, which leads to boring classroom teaching and hinders the improvement of the ideological and political teaching effect of college English courses. There is a large gap between the content system of the teaching material and the actual needs of students. Many students do not really understand it in the process of education. Therefore, students lack interest in the ideological and political content of English courses and their motivation is low. And students also have the problem of weak self-learning ability in the theory of learning pure English knowledge [2]. In order to solve the above problems and better promote the development of college English curriculum ideology and politics, it is advisable to use network technology to integrate college English and curriculum ideology and politics. Internet + education is the result of the deep integration of education and the information industry under the background of the development of advanced technologies such as the Internet. In the concept of Internet + education, the Internet integrates its characteristics of high efficiency, speed, and convenience with the education of various majors and courses in colleges and universities, and has gradually become a major boost for college education and teaching. Internet + university public English course ideological and political education is not simply to network traditional English and course ideological and political education, but to integrate correct values, outlook on life, world outlook and other moral literacy concepts into university public English course ideological and political education based on Internet technology. Collaborative innovation on the basis of multi-perspective integration enhances its moral education function, timeliness and attractiveness while ensuring the instrumentality of university public English humanities [3].

According to the above description, the author of this article believes that the establishment of a Python-based online teaching platform for college English courses ideology and politics can solve the above problems. This platform uses the Python language to connect to the MySQL database on the Django framework for functional development. By building an online teaching platform, teachers can obtain rich and diverse teaching resources, and do not have to always focus on a single teaching material content. Use a variety of teaching methods to fully stimulate students' enthusiasm and autonomy in English course learning. It is conducive to enriching teaching resources, cultivating students' autonomous learning ability and habits, and improving the ideological and political teaching effect of college English courses. By integrating ideological and political education into English discourse, it can form a good personal quality in the learning process, enhance the cultural self-confidence of college students, and benefit the healthy growth and development of college students in the future. The establishment of this system takes Lide and cultivating people as the central link, realizes the whole process and all-round education, and realizes the organic combination of English teaching and ideological and political education. The new pattern of three-dimensional "teaching and educating people".

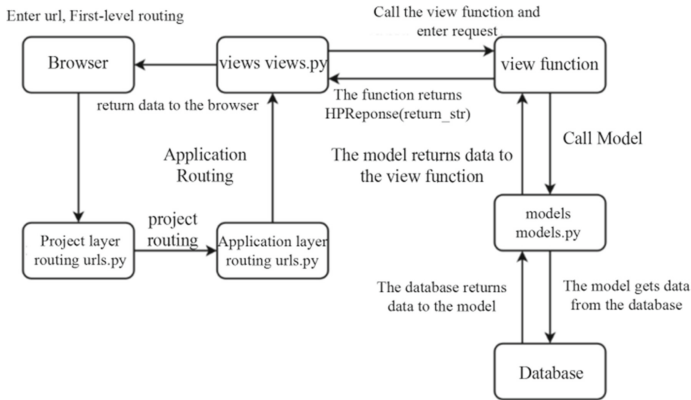
## 2 Key Technologies

### 2.1 Python Language

Python is an interpreted language that compiles as it executes. But this will affect the execution efficiency, usually compiled languages are more efficient than interpreted languages. However, interpreted languages are less platform-dependent. Python advantages: small amount of code, portability, rich library. The glue language allows Python to call libraries written in Python and non-Python. Websites developed by Python: Zhihu, Douban, youtube. Python designable fields: system programming, GUI, network programming, web programming, database programming... Python runtime needs to produce bytecode files, which are processed by virtual machines. When we run a Python file program, the Python interpreter converts the source code into bytecode, and then the interpreter executes the bytecode for faster and more efficient repeated execution. Unlike JAVA, which must be compiled before execution, Python can be compiled while executing [4].

### 2.2 Django

Django is an open source web application framework written in Python. Using Django, Python programmers can easily complete most of what a formal website needs with very little code, and further develop full-featured web services. The basic operation process of Django can be summarized as firstly enter the url through the browser to complete the first-level routing, then route urls.py at the project layer, route urls.py at the application layer, and return the data to the router by the view Views.py, and the view Views.py.py can also enter request to call the view function. The model is called in the model models.py, and finally the model gets the data data from the database. After this process



**Fig. 1.** Django basic running process

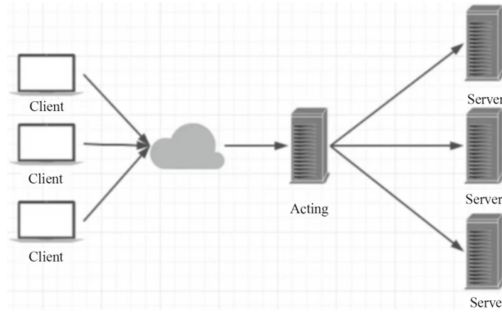
is completed, the database returns the data to the model `models.py`, the model returns the data to the view function, and the function returns `HTTPResponse(return_str)` to the view `views.py` and then returns the data to the browser. The above process is shown in Fig. 1.

### 2.3 Nginx

As an open source, free and lightweight server, the reason why Nginx is popular in the industry is closely related to its strong concurrent processing capability and small memory occupancy. In addition, Nginx is good at processing static requests, and its static processing performance is higher than Apache, while Apache is more suitable for dynamic request processing. Nginx is a load balancing reverse proxy server with the biggest feature. It is characterized by less memory usage, strong concurrency capability, and better performance among similar web servers. Reverse proxy means that a proxy server accepts connection requests on the Internet, then forwards the request to the server on the internal network, and returns the result obtained from the server to the client requesting connection on the Internet. At this time, the proxy server It appears as a server externally, as shown in Fig. 2 [5].

### 2.4 Development Environment

The author of this paper briefly introduces the relevant technologies used in platform development. This paper studies the ideological and political online teaching platform of the investigative course on the Windows 10 system. It refers to the Bootstrap template design and is developed based on the MTV mode on the Django 2.0.13 framework. The system is developed using the Python 3.7.4 version language. The system integrated development tool is Pycharm 2021.3, using MySQL 8.0.28 database and Redis6.0 database as database cache, and use Nginx 1.21.5 and uWSGI2.0.8 to complete the online system server deployment. After we activate Pycharm and create a new project, we can directly find Django, select the project address and interpreter address,



**Fig. 2.** Schematic diagram of Nginx reverse proxy

```

DATABASES = {
    'default': {
        'ENGINE': 'django.db.backends.mysql', # Default
        'NAME': 'school', # Connected database
        'HOST': '127.0.0.1', # mysql ip address
        'PORT': 3306, # mysql port
        'USER': 'root', # mysql username
        'PASSWORD': 'rootroot' # mysql password
    }
}

```

**Fig. 3.** Django connects to MySQL to add code

and start the project construction. After building the project, select the project, click Tools > Deployment > Configuration, select type as local or mounted folder, enter the root directory of Nginx configuration, and configure the corresponding address in the Mappings tab to complete the connection and deployment of Pycharm and Nginx server. By default, Django connects to its own sqlite database. Under settings.py in the project folder, log out or delete the sqlite configuration. And add the configuration code as shown in Fig. 3. Download command: pip install pymysql, then add the code pymysql.install\_as\_MySQLdb() to \_\_init\_\_.py in the project folder [6]. For the system of building a teaching platform in colleges and universities, the choice of system architecture and key implementation technologies is very important. According to the analysis of relevant technologies in the current era, it is believed that it is technically feasible to build an ideological and political teaching platform for college English courses based on the above technologies.

### 3 Demand Analysis

#### 3.1 Functional Requirements

The Python-based online learning platform for college English ideological and political education conducts functional demand analysis based on two types of users: teachers

Teaching stage	Teaching activity	Teaching Evaluation	Teaching form
preparation	Teachers combine teaching materials to mine ideological and political points	/	
implementation	Teacher/Student/Video/Text Story (story) Think ( Think )	/	On-Line
Supplementary content of teaching follow-up	pair/group ( pair/group ) ( tell a story or discuss ) Share(Share)	Peer Evaluation Peer Evaluation Teacher Evaluation	

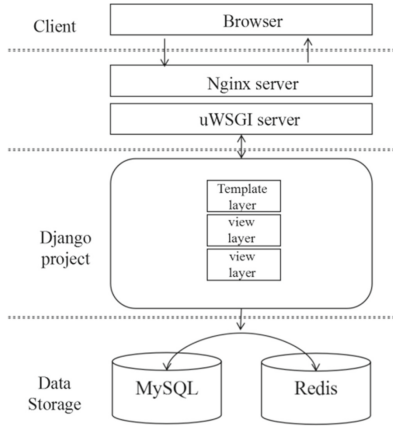
**Fig. 4.** The online teaching path of ideological and political college English courses

and students. According to the group positioning of users, the page design of the system needs to be concise and easy to operate. In this platform, teachers need to integrate the ideological and political content of English teaching courses through teaching goal setting, teaching material preparation, teaching implementation, teaching evaluation and other links, as shown in Fig. 4.

The teaching method based on this platform requires English teaching to create opportunities to help students improve their knowledge level, moral level, ability and awareness to better understand themselves, guide students to strengthen the study of excellent traditional culture, understand world civilization and ideological culture, and strengthen national Cultural self-confidence, strengthening the inheritance of excellent traditional culture, so that students can demonstrate the demeanor of a great country in the future English communication with foreign countries, and show the high professional quality and comprehensive quality of foreign exchange. In the process of learning, students can share their experiences and arouse emotional resonance, thereby deepening their understanding of the teaching content. From a speculative perspective, students evaluate each other's ideological and political content of the English courses they have learned in the form of discussion, so as to guide students to think deeply through such teaching. Peer peer evaluation can ensure students' participation. During this period, students have good behavioral participation, positive emotional participation and cognitive participation, and students may invest more effort in behavior and emotion, so as to better understand ideological and political knowledge Contain the ideas and master the target theoretical knowledge and skills [7].

### 3.2 Overall Design

The design of the ideological and political teaching platform for college English courses based on Python is based on the B/S model. In order to provide Web services and achieve the purpose of improving efficiency and load balancing, this platform deploys Nginx and uWSGI as Web Servers, which exist independently of each other. Nginx is responsible for processing HTML-related static requests to optimize the number of connections and static files. For dynamic requests that Nginx cannot handle, it will be forwarded to uWSGI through the uwsgi protocol (uWSGI's internal protocol); uWSGI is then responsible for Python-related dynamic requests, and It is forwarded to Django through the uwsgi protocol for processing related business logic. The Django project is based on the MTV model, which simplifies subsequent modification and extension



**Fig. 5.** System Architecture Diagram

of the program and makes it possible to reuse a part of the program. M represents the model (Model): the function that the program should have, and is responsible for the mapping (ORM) between the business object and the database. T stands for Template: responsible for how to display the page (html) to the user. V stands for View: responsible for business logic and calling Model and Template when appropriate. MySQL is used for relational database, and Redis is used for message middleware and task result storage. Through the above architecture model and the combination of server, web framework, and different components and data, it can be used as the basis for designing different functional modules, and at the same time, it can also achieve the establishment of college English The goal of the course ideological and political teaching platform. The system architecture diagram of this platform based on the above description is shown in Fig. 5 [8].

## 4 Function Realization

According to the main needs of education and education in the teaching process, this system is divided into two ports, teacher user and student user, for design and development. The implementation manner of each port function is described in detail below.

### 4.1 Student Side

Student users log in to the system through their student ID and password, and six functional modules will appear on the home page of the system, namely personal center, weekly study, forum communication, answering assessment, and score query. By clicking on the personal center module, student users can modify their basic identity information, and can also conveniently and quickly view the learning materials and forum posts they have collected during the learning process of the system. Click on the weekly learning module, you can see the learning resources uploaded by teachers in this module through text, images, audio and video and other multimodal presentations. The system

```
from django.shortcuts import render

from django.http import HttpResponseRedirect

from blog.models import Article

def get_article_contents(request):
    articles = Article.objects.all()
    first_article = articles[0]
    title = first_article.article_title
    abstract = first_article.article_abstract
    content = first_article.article_content
    return_str = "title:%s, abstract:%s, content:%s"%(title,
                                                    abstract,
                                                    content)

    return HttpResponseRedirect(return_str)
```

**Fig. 6.** The database obtains data and returns it to the browser view layer implementation code

background will record the viewing time and viewing progress of students and users. Student users can click on the forum communication module to see the content of the tasks that need to be completed according to the teacher's requirements, such as sharing the experience of resource learning every week or sharing the dubbing of video clips. The user sends a request through the client to call the data resources saved in the database to realize part of the code as shown in Fig. 6. In the experience sharing module, students can publish practical cases that describe the combination of learning content released every week, and summarize methods and inspirations for themselves. It is also possible to select key segments of the teaching videos released by the teacher for oral dubbing exercises and publish them. In the exchange forum, students and teachers can also browse the content posted by other students and give their own comments to express their own ideas. Through the replies between posts, students and teachers can conduct ideological and political English courses with them. Thought collision. Users can click on the answer test, and they can review the knowledge learned this week by filling in the electronic test paper issued by the teacher. The score query module is updated every week, and the scoring results include the results settled by the system according to the online learning log data, the scores obtained by teachers after sharing the reading results, and the scores given by the weekly answering assessment, which are calculated in a ratio of 3:3:4. Final score. Students can make targeted improvements to their ideological and political learning shortcomings in English courses through the weekly scores [9].

## 4.2 Teacher Side

By entering the account and password to log in to the system, teachers can see the same personal center, weekly study, forum communication, question answering assessment, and score query function modules as the student user port, but the specific functions of each module have changed. Click on weekly learning, teachers need to be related to the content of ideological and political topics in the setting of teaching topics. Such as Chinese excellent traditional culture propaganda, celebrity stories, real cases of national or international current affairs, such as a video of Deng Yaping giving a speech in English



on the Internet, telling that although she is inherently disadvantaged in terms of height, due to her perseverance and perseverance in practicing, eventually A record of 18 world championships. Such types of stories are highly related to the theme of ideology and politics, and can be used to explore the foothold of the combination of English majors and ideology and politics. Cultural self-confidence, scientific spirit, and fighting spirit are the ideological and political themes or text connotations that must be fully considered at this stage, and make full use of online film and television documentaries, news stories and other texts, images, audio and video and other multi-modal presentation resources, so as to set Teaching goals, ideological and political goals.

Click on the forum communication module, English teachers can check the learning experience sharing and oral language published by each student, and at the end of each article, the teacher will score it in time through the scoring button uniquely set on the teacher's terminal, and reply to the post. Answers to questions. Click on the answering and evaluation module, you can see the electronic test papers submitted by all students and perform online correction and scoring. Teachers complete the operations of uploading, modifying and deleting electronic test papers through the answering and evaluation module. Click the comprehensive grading function to see various grades automatically settled by the system, and teachers can modify these grades. And through this function, the specific learning situation of the ideological and political content of the students' English courses is accepted [10].

## 5 Conclusion

To sum up, in the context of the Internet era, it is an inevitable development path to build an ideological and political teaching platform for college English courses based on big data. The platform is of great value for stimulating students' interest in learning, cultivating students' autonomous learning ability and moral cultivation, and strengthening the integration of ideological and political courses into courses. Therefore, college English teachers should carry out more in-depth exploration and research on the ideological and political content of the course in the follow-up work, gradually build and have a more complete teaching model, innovate the classroom teaching model, and promote the application of modern information technology in the course ideological and political teaching, stimulate students' interest in learning, guide students to think deeply; and make good use of second classroom activities such as competitions and dramas to create a good environment for ideological and political education. Strengthen the ideological and political teaching effect of college English courses. The application of the current system is still at the theoretical level, and the practical application effect of this path model needs to be verified and improved by empirical research in teaching practice.

## References

1. Jin F (2021) Research on the ideological and political content construction of college English course teaching materials. *Foreign Lang World* 2
2. Lan M (2020) The ideological and political path of college English courses under the blended teaching mode. *Soc Scient* 12

3. Yan Y (2020) Exploration on the ideological and political teaching mode of college English courses based on cloud platform. *J Hubei Correspond Univ* 8
4. Pycharm+Django configuration and basic introduction. <https://blog.csdn.net/xzy5210123/article/details/80178128>
5. Bai X (2019) Design and implementation of web online education platform based on Django framework. Beijing Jiaotong University (BJTU) 6
6. Liu Y (2018) Design and implementation of cloud classroom platform for primary and secondary schools based on Python. Beijing Jiaotong University (BJTU) 5
7. Qin Y (2021) Research on ideological and political teaching of business English courses based on Panya platform. *Mod Inf Technol* 7
8. Dinning (2021) Development and research on the ideological and political teaching mode of Internet + university public English courses. *J High Educ* 6
9. Zheng H, Liu M (2020) Constructing a micro-teaching platform of higher vocational English “course ideology and politics” with higher vocational characteristics. *Overseas English* 1
10. Yang X (2020) “Course ideology and politics” in higher vocational English: justification, current situation and path. *Chinese Vocat Tech Educ* 8

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