Research and Analysis of Micro-Specialty Construction from the Perspective of Web Front-End Development Certificate

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Abstract: With the rapid development of the Internet, the talent gap in the software industry is increasing. Web front-end development and technical talents have also become positions that have seen rapid growth in demand in recent years. Job statistics found that in 2019 campus recruitment positions, there are "Web front-end development engineers" in positions posted by multiple industries. Due to the high overlap of the shortage of talents of employers, the competition for talent is very fierce, and the offer salary given by the company is not only high. In other positions, salary growth is also the fastest. In this context, the micro-professional construction model from the perspective of the Web front-end development certificate should also continue to innovate and reform, with the main goal of cultivating compound front-end development talents to meet the learning needs of students and meet the needs of the market.

Keywords: Research, Analysis, Micro-specialty construction, Web front-end development certificate

1. Introduction

With the development of the Internet industry, especially in some large and medium-sized Internet companies, the related positions of website development are becoming more and more subdivided, such as website art, UI/UE design, front-end development, back-end development (server development) and other positions. The division of labor is clear and requires close cooperation. Around 2010, front-end development engineers have become an independent position with large-scale recruitment needs.

The web front-end development job group mainly includes web design, web production, responsive page construction, mobile web production and design, UI design, HTML5 development, front-end development, website construction, website planning and design. In 2017, only Zhaolian recruitment website will provide 136,848 jobs per year for web front-end development have been recruited.

The number of Web front-end employees has far exceeded the number of developers of mainstream programming languages such as Java and ASP. According to the 2017 recruitment requirements of Baidu, JD and Zhilian, companies do not prefer single-skilled job seekers who only know JS, HTML5, and CSS, but are keen to hire multi-skilled talents. Therefore, the cultivation of technical talents for Web front-end development is an objective need for the continuous development of the Internet application industry and for the construction of a talent team.

2. Analysis of the Classification and Skill Points of the Web Front-End Development Certificate

Web front-end development professional skills are divided into three levels: elementary, intermediate, and advanced.

2.1 Analysis of the Skill Points of the Primary Certificate

Focusing on the talent demand brought by the Internet + and emerging technology industries, cultivate good professional ethics and humanities, master the basic knowledge of web front-end development, have the ability to design, debug, and maintain static web development, and be able to engage in web front-end software coding and software Junior technical talents in testing and software

technical services. Its main professional abilities: 1) Have the front-end development of new knowledge, new skills, learning ability and innovation and entrepreneurship; 2) Have the ability to design and produce websites; 3) Have the ability to interact with web animations and data.

In the development and beautification of static web pages, you can use HTML text tags, head tags, page creation hyperlinks, and table form functions to build static web pages; you can use CSS to develop web page styles, and correctly use CSS selectors, units, font styles, Functions such as text style, color, background, block, web page layout attributes, etc., can correctly use the Hack principle; can use JavaScript to develop web interaction effects, can correctly select data types, set variables, and can correctly use basic languages such as calculations and built-in functions. Can use JavaScript objects and DOM programming correctly; can use jQue-ry selector, DOM operations in jQuery, scrolling, charting, layout, word processing and UI plug-ins, jQuery events and animations and other functions to develop interactive effects pages; can use CSS3 New selectors, new border features, new colors, fonts, box shadows, background features, box models, gradients, transitions, multi-column layout, flexible layout and other functions to modify web pages; can use HTML text tags, images, headers Markup, create hyperlinks on the page, create forms and iframe frames and other functions to beautify web pages, understand and master HTML text tags, head tags, and page creation. For dynamic website construction, it is required to be able to use CSS3 selectors, borders, colors, text effects, fonts, box shadows, backgrounds, box models, gradients, transitions, animations, multi-column layouts, and flexible layouts to develop dynamic web pages.

2.2 Analysis of Intermediate Certificate Skill Points

Focusing on the demand for talents in web front-end development and mobile-end development technology brought about by the Internet + and emerging technology industries, it is oriented to enterprise employment, with job skills and comprehensive qualities as the core, cultivates good professional ethics and humanistic qualities, and masters the front and back ends of the Web Intermediate technical talents with knowledge of data interaction, responsive development, etc., capable of designing, debugging, and maintaining dynamic web development, and capable of engaging in Web front-end software programming, software testing, software technical services, and smart terminal interface development. Main professional abilities: 1) Have the ability to learn new front-end knowledge and new skills and innovation and entrepreneurship; 2) Have the ability to plan and build a website; 3) Have the ability to design and manage MySQL database; 4) Have the ability to develop website responsiveness; 5) Have data interaction capabilities.

In the construction of static websites, regarding the development of static web pages, it is required to be proficient in using HTML to write static web pages, use CSS to develop website page styles, use JavaScript to develop website page interaction effects, and use jQuery to develop website page interaction effects. Bootstrap develops responsive pages. It can use the new features of CSS3 to change the style and structure of website pages, and can use HTML tags to beautify the original static web pages.

For dynamic website construction, it is required to be able to use the new features of CSS3 to change the page style and structure of the website, to use MySQL database for basic data management, to use PHP to create dynamic web pages, to use basic API design methods to design usable APIs, and to use Ajax creates fast dynamic web pages and can use Laravel framework to build dynamic websites.

2.3 Analysis of Advanced Certificate Skill Points

Focusing on the demand for talents in web front-end development and mobile-end development technology skills brought by the Internet + and emerging technology industries, it is oriented to enterprise employment, with job skills and comprehensive qualities as the core, cultivates good professional ethics and humanistic qualities, and masters the Web front-end framework Knowledge of application, performance optimization and automation technology, advanced technical skills talents with front-end architecture, mobile smart terminal development, component-based development, etc., capable of engaging in Web front-end architecture design, technology selection, componentization, etc. Main professional abilities: 1) Have the ability to learn new knowledge and new skills and innovation and entrepreneurship; 2) Have the ability to design front-end architecture; 3) Have the ability to develop mobile terminals; 4) Have the ability to front-end componentization; 5) Have website performance Optimization ability.

Advanced certificate professional ability in static web page development, static web page

beautification, dynamic web page development, requires more proficient application and maintenance, in architecture design, requires the ability to use ES6 new specifications to build front-end programs, and nodejs to build a high-performance server-side environment , Can master the Vue front-end framework and can complete the performance optimization of the packaged website, can use HTML and CSS code structure optimization, can optimize the image resource, can optimize the front-end resource loading, can use the Web-pack to analyze the project structure, and JavaScript modules and other extended languages that cannot be run directly by the browser are packaged into a suitable format for use by the browser.

3. Micro-Professional Overview

Micro-professionals have different names and expressions on different MOOC platforms, and common expressions such as specializations, programs, degrees, etc. At present, there have been successful cases of micro-professional construction, which can be divided into professional-oriented and occupation-oriented two types. The former is led by universities and the latter is mostly implemented by online course platforms. These micro-professional constructions are provided to learners through the online open MOOC platform. The required learning courses are miniaturized and customized courses for a certain profession or a specific occupation, often consisting of about 5-10 core courses . These courses refine the core courses or core skills of a certain profession or position group, and allow learners to quickly meet the graduation requirements of a certain profession or the job skill requirements of a certain field in a fast and concentrated way. Especially for career-oriented micro-professionals, its main purpose is to find fast employment and solve the matching problem between the university's professional settings and the needs of enterprises. From the perspective of job positions and market demand, organize and study micro-professional courses based on the career of students

4. The Characteristics of Micro-Professional

4.1 Low Cost

On the basis of the original course teaching, the micro-professional has added courses that match the requirements of cross-border enterprise job abilities, using teaching platforms such as vocational education cloud and rain courses, through online and offline learning, and multi-party assessment and evaluation of enterprises, schools and platforms , To complete micro-professional teaching, it has the advantages of strong pertinence, large investment, flexible teaching methods and low teaching costs.

4.2 The Effect is Good

The teaching content of micro-professional courses mainly involves learning related courses that match cross-border jobs. Arrangements are made according to actual job requirements, so that students' learning of practical skills is not simply focused on theoretical understanding and memory, and they can acquire professional knowledge in operation and practice, which will help improve their professional skills, and the teaching effect is quite satisfactory.

4.3 Concentration

There is not much micro-professional content, and any course content construction meets the actual job skill needs. For example, for the art positions, customer service positions, and marketing positions of the enterprise's cross-border e-commerce department, the relevant courses are refined into the specific needs of the cooperative enterprises, and the corresponding micro-professional course packages are packaged. Through reasonable arrangements, short-term learning and scientific construction, students can understand the knowledge of the cross-border e-commerce industry.

5. Research and Analysis of Micro-Specialty Construction from the Perspective of Web Front-End Development Certificate

Online course platform-led micro-professional construction. The construction of micro-specialties is led by platforms, attracting the participation of famous companies. This type of micro-professionals are mostly for profit. The most well-known domestic micro-professionals of this type should be the

micro-professionals of NetEase Cloud Classroom. Unlike Udaxue City, the company that NetEase Cloud participates in is NetEase. NetEase Cloud Micro professional teachers mainly come from NetEase senior engineers and teachers from training institutions stationed on the platform. There are also a small number of authoritative scholars who have purchased copyright to teach courses, such as the "Deep Learning Engineer" course taught by Wu Enda.

University-platform cooperative micro-professional construction The most classic case of this type of micro-professional construction is the XSeries built by Edx. Each XSeries covers 2-4 traditional university courses, which generally take 1-4 semesters to complete, and the university grants a certificate. This kind of domestic micro-professional construction has just begun. The main cooperation platforms are China's MOOC and Wisdom Tree, such as influential online course platforms, such as the "International Organization and Global Governance" micro-professional course set up by the School of International Relations of Peking University (Spring 2019 Enrollment for the first time), students must complete the 4 professional courses in two semesters, a total of 10 credits. The project cooperates with the Wisdom Tree, adopts a hybrid teaching mode that combines online and live lessons, and is assessed through offline examinations. Passing the scores can obtain the "International Organization and Global Governance" micro-professional course issued by the School of International Relations, Peking University The tuition fee for the certificate is 12,800 yuan.

University-led micro-professional construction in China is basically college-led micro-professional construction. Universities that have implemented more than one semester include Southwest Jiaotong University, Hangzhou Dianzi University and East China University of Science and Technology. Southwest Jiaotong University launched 33 courses in 3 micro-majors in NetEase Ai Classroom. All courses are studied online, and they will be completed after passing offline examinations and graduation design. The online resources of these courses are mainly on-campus SPOC and are not open to the public. On-campus students receive a minor professional certificate after completing their studies, and graduates with a bachelor's degree can enter the school after passing the examination and obtain a student status. The length of study is 4 semesters.

Hangzhou Dianzi University has set up two micro-specialties of "Computer Information Technology" and "Entrepreneurship Management", which are taught in a mixed online and offline format. Online courses are set up on the school's own platform and are not open to the public. For the sophomore, junior and senior students of our school, they need to complete the 16 credits required by the micro major training program.

In the micro-professional construction led by colleges or universities, almost all online resources are provided by colleges and universities, and the learning resources provided by colleges and universities are obviously weaker than the micro-professional construction led by platforms and enterprises in terms of practicality, but the micro-professionals led by the platform are in the degree certificate The degree of recognition is far inferior to that of the certificates provided by universities. Through the above analysis, we can find that a successfully implemented micro-professional construction should contain the following common characteristics: (1) Provide abundant and constantly updated online resources: Online resources should be fully open to the outside world, attracting all kinds of students, not just students; Utilizing existing teaching resources in universities, the update speed and frequency of resources should be in line with platform-led professional construction. (2) Emphasis on corporate participation: Corporate participation is relatively large. In addition to providing professional employment guidance, trainees should also be provided with internship opportunities so that they can keep up with the latest professional market demands and improve their skills. (3) Design of a large proportion of training links: Design teaching content with the training link as the core or assessment item, and continuously strengthen theoretical knowledge through training. The design of training content should be oriented to the latest technical requirements and be continuously updated. (4) Strengthen interactive links to ensure service quality: provide personalized or one-to-one counseling, change construction ideas, industrialize micro-professional construction, improve service awareness, use teaching as a service and ensure service quality. (5) Carrying out offline activities: The best way to ensure the quality of learning and understand the learning situation is to be able to communicate face-to-face. Through regular face-to-face classes, offline examinations and graduation design, the quality of learning and the gold content of the micro-certificate are ensured.

6. Conclusion

The Web front-end development certificate system is the latest policy proposed by the Ministry of

Education. The exploration of the pilot construction path will be improved through trial and error. Its practice and research will help improve the quality of talent training in related majors and help ease The employment pressure of college graduates and the better development of colleges and universities. The construction of micro-professionals in my country's universities is still in its infancy. It is necessary to absorb the advantages of successful cases at home and abroad and design the development route of micro-professional construction according to my country's national conditions. With the rapid development of society and the rapid update of knowledge, more and more people are aware of the importance of lifelong learning. The successful construction of micro-professionals will better serve the public and effectively promote engineering education for all under the background of new engineering.

Acknowledgement

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