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Technical and Vocational Education Master's Course Curriculum: Presentation of suggested course titles for teacher training universities of technical and vocational education in Iran

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A B S T R A C T

This article was carried out to present the subjects and titles of the technical and vocational education master's courses in Iran with a qualitative approach and using a descriptive-analytical method. The studied population included 10 curriculum titles of the Master's course in the education field of Farhangian University and 25 curriculum titles available in the Master's course of the technical and vocational education of other countries' universities. The results of the analysis and comparison of the differences and similarities of the courses showed that although there are differences and diversity in the number, type, and subject titles of this field in the universities, the titles of the courses in different universities share the following general titles. Based on the findings of the research, Compensatory lessons "Philosophy of Islamic education and training in the Islamic Republic; Teacher ethics from the perspective of Islam", compulsory courses "management, principles of teaching, technology, evaluation, research, philosophy and curriculum" and elective courses "psychology and counseling; Adult Education; Issues and challenges in technical and vocational education; Internship and seminar" and thesis are suggested for the master's course in the field of technical and vocational education of Iranian universities.

Keywords: *Master's course, Technical and Vocational Education, Curriculum, Course Titles*

Introduction

Technical and Vocational education in the 21st century is an education whose goal is sustainable development with an emphasis on the development of life skills, job skills, and learning skills (Hyland, 2014). Preparing a capable workforce to move the wheels of the country's industry and economy requires a skilled and trained workforce. Therefore, trainers in the field of technical and vocational education play an effective role in training the skilled workforce needed by the country. Teachers as a key element of the educational system (Chinedu, Wan-Mohamed & Ogbonnia, 2018), need development and promotion Fernández-Batanero, Montenegro-Rueda, Fernandez-Cerero, & Garcia-Martine, 2022, Majumdar, 2014)) so that they can respond to the changes and developments of science and technology of the 21st century, which is one of the basic issues of technical and vocational education (Salleh¬&¬Puteh, 2017).

Technical and Vocational teachers should increase their competencies to provide vocational education that can train future human capital and adapt to new technologies and global challenges in this digital age. Dayangku, Suraya Awang Jafar. Sukri Saud, Muhammad. Zolkifli Abd Hamid, Mohd. Suhairom, Nornazira. Hizwan Mohd Hisham, Mohd. Hanafi Zaid & Yasmin, 2020)).

Technical and Vocational education teachers and trainers need to master the skills and knowledge in their subject area like other teachers (Rofiq, Surono, Bruri Triyono & Setiyo Hari Purwoko, 2019), but the competencies and skills needed by technical education teachers and the profession is different from public school teachers, so it is very important and necessary to identify the main competencies of the teacher of skill education (Wahyuni & Sugihartini, 2020)).

Despite the greater complexity and extent of technical and vocational education compared to other education fields (Chou, Shen, Hsiao & Shen, 2018)), in Iran, in comparison with developed and developing countries, no attention has been paid to the training of technical and vocational education teachers at the graduate education levels. Although this action has been taken in other areas of education such as primary and secondary education (Farhangian University, 2023).

According to Gruber & Riedl (2021), the purpose of holding a master's course in technical and vocational education is to create motivation, improve and provide quality education to future teachers, and (2017) Rahmatullah, Mukhadis & Hajji in research titled satisfaction with services Training for graduates of the master's course in technical and vocational education at the University of Malang; They considered the development of teachers' expertise and skills, mastery of science and technology, and personal development among the characteristics of the graduates of this educational course.

It is clear that curricula in higher education courses are as important as in other educational systems, regardless of what is the definition of the curriculum (learning experiences, content, goal, lesson...) Hosseini Largani & Yadgarzardeh, 2021).

Usually, in lesson planning, the content corresponding to educational goals appears in the form of course titles and headings (Zarei Zavaraki, 2017). After determining the goal, the content of the curriculum is one of the basic choices that curriculum editors can make to determine the path of the next choices. Therefore, curriculum researchers with sensitivity and concern try to make the most suitable choice for curriculum content by conducting related studies. Considering the issues raised and the importance of designing the curriculum of the master's course in technical and vocational education, this article seeks to answer these questions:

- What topics and titles are included in the courses of technical and vocational education in the master course?
- What are the similarities and differences in the titles of the master's courses in the field of technical and vocational education in the studied universities?
- Which courses are suitable for the master's course in technical and vocational education in Iran?

Methodology

The main approach of the research is qualitative and it has been done through document studies and document analysis methods. The steps of implementing the documentary method are: 1) choosing the subject, determining the goals and questions 2) exploratory investigations and research background 3) choosing the theoretical approach 4) collecting sources, sampling, and techniques for reviewing sources (determining keywords, using the table of contents and the list of announcements), electronic sampling, systematic review, classification and conceptual tables, data reduction techniques, theoretical interpretation of statistics) 5) Processing (re-evaluating and observing paradigmatic literature), writing and reporting (summarizing and

presenting a point of view) (Sadeghi Fasaee & Erfan Manesh, 2015:88)). The statistical population of the research includes 10 master's degree courses in the fields of education (physics, elementary, economics and entrepreneurship, history, English language, mathematics, philosophy and logic, biology, physical education, Persian language and literature) of the university. Farhangian and 25 curricula are available in the field of technical and vocational education in the universities conducting the course abroad and their comparison. Due to the similarity of the fields of education (physics, chemistry, and mathematics) in Shahid-Rajai University with Farhangian University and the lack of updating the curriculum of the fields of education in Shahid-Rajai University, the study of the curriculum of these fields in Farhangian University was considered by the researchers. took In this way, it is possible to provide a theoretical proposal of course titles for the preparation of the curriculum of the master's course in technical and vocational education according to the lists of upper documents and the requirements of the country of Iran. To collect the information needed for the research, the library documents related to the selected universities and referring to the websites of the available universities were used. Regarding the validity of documents, attention was paid to external and internal criticism. The authenticity of the documents was confirmed by experts. To externally criticize the originality of the documents and in the internal evaluation, the correctness of the content of the documents was examined. After examining the subjects and subjects of the master's course in technical and vocational education in international universities, an attempt was made to classify the subjects and subjects in general groups. Presenting a personal understanding of the subject under study was effective in interpreting the information, and the proposed titles were an attempt to provide a comprehensive description of the titles and topics of the proposed courses of the master's course in the field of technical and vocational education. In the process of research investigation and finally presenting the proposed course titles for the master's course in technical and vocational education, the authors of the article individually compared the review of the collected information in terms of coordination with the curriculum structure of the master's course in internal education (Farhangian University)) and then in the focus group, they criticized and reviewed their findings to ensure the validity of the reported findings, which included the proposed table of subject headings for technical and vocational education courses in the master's course.

Findings

The findings of the examination of the course titles show that despite the variety of courses, the type and number of course units in universities, most of the subjects in the field of technical and vocational education in the master's course are under the following general titles: 1-Technology 2-Management 3-Teaching principles 4-Research 5-Evaluation 6-Philosophy 7-Curriculum 8-Problems and challenges of technical and vocational education 9-Adult education 10-Internship, seminar and thesis 11-Psychology and counseling They take Therefore, the researchers in this article have used these subject classifications to compare the studied subjects of the universities.

The courses related to the two subjects "management and teaching principles" have the most frequency and the titles "Learning and teaching in technical and vocational training" and "Teaching methods in technical and vocational education" are Among the most frequent titles considered below is the subject of teaching principles in technical and vocational education. The courses "Management and Leadership in Technical and Vocational Education, Program Management in Technical and Vocational Education and Management of Work-Based Learning Programs" are among the most frequent titles of the management course collection. "Adult education" has the least number of subjects in this course. The universities of Wisconsin-Stout, Athens State, Kathmandu, California State, Monash, and Tun Hossein have the most diversity in providing course titles with different subjects in the field of technical and vocational education.

Examining and comparing the content and subjects of the curricula of the master's degree courses of Farhangian University shows that the structure of the course table presented in the master's degree course at this university is divided into three sections: compulsory, specialized, and optional courses. , all the training courses of the master's course at Farhangian University have the same total of 32 units, including 4 units of compensatory courses and 4 units for the thesis, and their difference is in the number of required courses (14-16 units) and elective courses. (12-14 units). Based on the framework of the table of education courses in Farhangian University in the master's degree and the examination of the titles of technical and vocational education courses in the master's degree, in addition to two compensatory courses on the philosophy of Islamic education and training in the Islamic Republic and teacher's ethics from the perspective of Islamic studies for 4 units, based on the information in Table 4, 5 compulsory subjects and topics frequently related to management, teaching principles, technology, curriculum,

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research, philosophy and evaluation for 14-16 units and optional psychology courses. and counseling; Adult Education; Issues and challenges in technical and vocational education; Internship and seminar 12-14 units and thesis 4 units are suggested as courses of this educational course. Table 16 shows the categories and titles of the courses offered in the field of technical and vocational education in the master's course.

Conclusion

The results of this research in the field of subjects and titles of technical and vocational education courses in the master's course show that although there are differences in the number and variety of subjects of the universities and the studied sources, many of the planned courses have common courses with the subject of management. , technology, curriculum, evaluation, teaching principles, philosophy of education, psychology and counseling; adult education; issues and challenges in education; There are internships and seminars. The diversity and multiplicity of the subjects and titles of the courses of the master's program of technical and vocational education in the studied universities appear mostly in the elective courses. According to the data in Table 4, in the curriculum content of most of the studied universities, courses related to "management" and "teaching principles" are more frequent. 84% of the studied universities have allocated courses to "Principles of Teaching and Management in Technical and Vocational Education". The global shortage of qualified technical and vocational training employees is caused by several weaknesses in the system, such as the status and little attention to professions, lack of available career paths, inefficient employment and income and wage systems (Rawkins, 2018), all of which It shows the importance and position of management in technical and vocational education, which is in line with research (Syysnummi & Laihonen, 2014, Al-Momani, Allouh & Al-Homran, 2012, Kotsifakos, Adamopoulos & Douligeris, 2016). Courses with management subjects in technical and vocational education and training, especially in the vocational development of art students, are of special importance in comparison with the lesson plans that are organized for the training of other teachers of theoretical courses; And it has been proposed as one of the compulsory courses of this course. Also, what differentiates the teaching-learning process in technical and vocational training from other educational fields is the emphasis of these trainings on the acquisition of skills and techniques to perform tasks and professions, which was done in the research conducted by (Amaechi & Thomas, 2016, Gamble, 2013 , Zakeri, 2010,) has also appeared, it has caused more attention of universities to this subject, which has made the position of the teaching principles courses in technical and vocational education among other courses, and based on the curriculum documents Farhangian University's teaching fields in the master's degree course, teaching methods, and techniques, are offered as mandatory courses. In addition, effective evaluation is a necessary element of a technical and vocational education system (Winther & Achtenhagen, 2009, Baartman Gulikers & Dijkstra, 2013) and the evaluation course in technical and vocational education is one of the most frequent courses in curriculum. It is universities that should be considered as one of the mandatory courses in this field, and responsiveness to technological changes should be mentioned as one of the distinguishing features of technical, vocational, and skill education, which is mentioned in (Kovalchuk's & Sheludko, 2019, Beer, & Mulder, 2020) research.The attention to technology is evident in more than half of the university curricula and the number of related titles is between 11 -24 titles, the reason for which can be seen as the difference in the number of optional courses provided in the related curricula. As such, the subject of technology is also proposed as a compulsory course of this course in the framework of the courses of teacher training universities. In technical curriculum design, a vocational should meet the needs and process of implementing the content of the curriculum. In addition, the design should be reviewed from time to time and necessary changes should be made according to the needs of the work field, which is in line with the results of the research (Munir& Sinambela؛ 2015, Halizah, Khayru & Mendrika, 2022؛Widiaty & Anna,2015). This issue requires the mastery of technical and vocational education instructors on the curriculum and its design, and to achieve this goal, appropriate attention has been paid to the curriculum and its design among the universities under research. Various philosophical schools with different values and epistemological foundations are prominent in technical and vocational education, which requires the mastery of teachers and trainers of technical and vocational education in this field, which is in line with the research results (Schmidtke & Chen, 2012; Bani Amerian, 2018) and based on the information gathered from the content of the study program of the studied universities, courses related to philosophy in technical and vocational education have a position of 52% among the titles of other courses. Research and familiarity with research methods are important in all academic fields and courses, especially at the secondary education level, which, like philosophy, is included in the curriculum of half of the universities. As a result, the curriculum

cluster of management, teaching principles, technology, evaluation, research, philosophy, and curriculum have a share of more than 50% based on the structure of the master's degree course in the field of education in Iranian universities, as mandatory courses and other courses, They have been suggested as elective courses of this course. Elective courses include psychology and counseling; Adult Education; and Issues and challenges in technical and vocational education; There are internships and seminars, which, in terms of frequency, are after the recommended mandatory courses, in the course table of the universities that administer the field, and the main difference in the curriculum of this field in different universities is the number and variety of elective courses.

According to the results of the research, in addition to the necessity of implementing a master's degree course in technical and vocational education, while examining the content of the curriculum in different universities around the world, compiling suggested topics and courses in the field of technical and vocational education for a master's degree course. It should be done by taking into account the indigenous knowledge and culture of the country, the preparation of the land, the needs of the country, the current knowledge of the world, and the international needs.

References

Abbasnejad, T., Bahri, S., & Baneshi, E. (2019). Studying the effect of continuing education on job performance and perceived career success. *Journal of Sustainable Human Resource Management*, *1*(1), 52-31. https://doi.org/10.22080/shrm.2019.2355

Aghazadeh, A. (2012). *Comparative Education*. Semit Publications.

Aghmashe, M. (1987). *History of technical and vocational education in Iran*. part five: training of technical and vocational teachers.

Al-Momani, M., Allouh, Z., & Al-Homran, M. (2012). Teachers Implementation of Effective Classroom Management from Vocational Education Students' Perspectives. *International Journal of Education*, *4*(3), 137. https://d1wqtxts1xzle7.cloudfront.net/95562876/d68d7164c5ad420d51b76fba5c00773c0a51-libre.pdf?1670749401=&response-content-disposition=inline%3B+filename%3DTeachers_Implementation_of_Effective_Cla.pdf&Expires=1721037291&Signature=J4M9eyLm6vUwfcw7nIaElfiGAlCLkgF2uOWfCdcDdppxebIf1176pIZUBWofkp6dIZiNJToD-hbZpdtgjDQTTIDfBlnZRJSM3NoKTQDM8Z5o61UC1phAr~Srt~b-ICBlPtXuc7hkTKm0j6bNK1qsD~0mVy4PDpQmOfykhcH~48fCvCzz5TvQ3fnj-qr7oO8midRocuEaRY0iDjjKtm0HU8aBAKEeaYYegnffNMmH25NRcnyptW74uht4iFDJq4G0ZPtzpm-c5V~dz38ntEsml~GBb-dm3X72XTV8lvoKZal788kDvdruMrLGmvdWJVoxEyKEqkxwKGnw16YvrNPgDA__&Key-Pair-Id=APKAJLOHF5GGSLRBV4ZA

Amaechi, E., & Thomas, C. G. (2016). Strategies of effective teaching and learning practical skills in technical and vocational training programmes in Nigeria. *International journal of scientific research engineering & Technology*, *5*(12), 598-603. https://www.researchgate.net/profile/Chinujinim-Thomas-2/publication/359414316_STRATEGIES_OF_EFFECTIVE_TEACHING_AND_LEARNING_PRACTICAL_SKILLS_IN_TECHNICAL_AND_VOCATIONAL_TRAINING_PROGRAMMES_IN_NIGERIA/links/623ac7442708166c0543ce75/STRATEGIES-OF-EFFECTIVE-TEACHING-AND-LEARNING-PRACTICAL-SKILLS-IN-TECHNICAL-AND-VOCATIONAL-TRAINING-PROGRAMMES-IN-NIGERIA.pdf

Baartman, L., Gulikers, J., & Dijkstra, A. (2013). Factors influencing assessment quality in higher vocational education. *Assessment & Evaluation in Higher Education*, *38*(8), 978-997. https://doi.org/10.1080/02602938.2013.771133

Bani Amrian, M. (2018). *Designing and validating the curriculum model of higher technical and professional education based on entrepreneurial promotion*

Beer, P., & Mulder, R. H. (2020). The effects of technological developments on work and their implications for continuous vocational education and training: A systematic review. *Frontiers in psychology*, *11*, 918. https://doi.org/10.3389/fpsyg.2020.00918

Bünning, F., & Schmidt, U. (2022). International Framework for a Master's Degree for the Professionalisation of TVET Teachers: Potentials for International Development Cooperation. In F. Bünning, G. Spöttl, & H. Stolte (Eds.), *Technical and Vocational Teacher Education and Training in International and Development Co-Operation: Models, Approaches and Trends* (pp. 133-143). Springer Nature Singapore. https://doi.org/10.1007/978-981-16-6474-8_9

Chakroun, B. (2019). National Qualifications Framework and TVET teacher competence frameworks: A neglected dimension of qualifications reforms? *European Journal of Education*, *54*(3), 370-388. https://doi.org/10.1111/ejed.12359

Chinedu, C. C., Wan-Mohamed, W. A., & Ogbonnia, A. A. (2018). A systematic review on education for sustainable development: Enhancing TVE teacher training programme. *Journal of Technical Education and Training*, *10*(1), -. https://penerbit.uthm.edu.my/ojs/index.php/JTET/article/view/1678

Chou, C.-M., Shen, C.-H., Hsiao, H.-C., & Shen, T.-C. (2018). Industry 4.0 manpower and its teaching connotation in technical and vocational education: Adjust 107 curriculum reform. *International Journal of Psychology and Educational Studies*, *5*(1), 9-14. https://doi.org/10.17220/ijpes.2018.01.002

Dayangku, S. A. J., Saud, M. S., Hamid, M., Suhairom, N., Hisham, M. H. M., & Zaid, Y. H. (2020). TVET teacher professional competency framework in industry 4.0 era. *Universal Journal of Educational Research*, *8*(5), 1969-1979. https://d1wqtxts1xzle7.cloudfront.net/64331546/UJER34-19515454-libre.pdf?1599018317=&response-content-disposition=inline%3B+filename%3DTVET_Teacher_Professional_Competency_Fra.pdf&Expires=1721038319&Signature=Zjw8UvuYJQrPhYyP-x8x0v752~etV~dfrZtdl9I6vLfLJILFlGYZWCt04QOhJhlVpyGVql74OZYl1Hs0~UgAWWeoFgp-kKCxYgnGlBevWmh68GJBMrZsOMk1gmqgdFwnzCLCLtMdGa1PMkboEpiX7uNRWBE5k6vCPpNzhdqcd-

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9dq8s14wAm2RjTURLHTJE3bG3nPhRssbYoFpOUcEtFq1IjeN6cW6bpcXn~DNNvKFq2jqd03N6e6PytZrNu5XZfJTInBNaslzTwOnIJmEsF8vn1X4OWYTRHgDa37CuK-9RXtGibt0WxxC9JLkd~uGwntRl0DvPd836Jggj3sRsQ2A__&Key-Pair-Id=APKAJLOHF5GGSLRBV4ZA

Didehvar, N., Mosapour, N., Yadegarzade, G., & Abtahi, M. A. (2024). A Comparative Study of Master's Courses in Technical and Vocational Education in Selected Universities of Australia, Germany, Malaysia and United States of America. *Iranian Journal of Comparative Education*, *7*(2), 3020-3048. https://doi.org/10.22034/ijce.2024.422160.1538

Fernández-Batanero, J. M., Montenegro-Rueda, M., Fernández-Cerero, J., & García-Martínez, I. (2022). Digital competences for teacher professional development. Systematic review. *European Journal of Teacher Education*, *45*(4), 513-531. https://doi.org/10.1080/02619768.2020.1827389

Gamble, J. (2013). Why improved formal teaching and learning are important in technical and vocational education and training (TVET). *Revisiting global trends in TVET: Reflections on theory and practice*, *204*(no), -. https://unevoc.unesco.org/fileadmin/up/2013_epub_revisiting_global_trends_in_tvet_book.pdf#page=214

Hosseini Largani, S. M., & Mojtabazadeh, M. (2023). Designing and validating a curriculum model for Higher Education System in Iran. *Quarterly Journal of Research and Planning in Higher Education*, *24*(3), 23-51. https://journal.irphe.ac.ir/article_702956_5da327d58f133683ce74cd697d1f0a0e.pdf

Hosseini Largani, S. M., & Yadegarzadeh, R. (2021). University Curriculum Development Models in Higher Education: A Proposed Model for Higher Education in Iran. *Journal of higher education curriculum studies*, *11*(22), 49-88. https://www.icsajournal.ir/article_128284_0078a3219d5bb99c07baca0eeb418d71.pdf

Hyland, T. (2014). Reconstructing Vocational Education and Training for the 21st Century:Mindfulness, Craft, and Values. *Sage Open*, *4*(1), 2158244013520610. https://doi.org/10.1177/2158244013520610

Khallagh, A.-A., Assare, Alireza (2008). Proposed curriculum of the master's degree course in the field of technical and vocational education. Shahid Rajaei University.

Kotsifakos, D., Adamopoulos, P., & Douligeris, C. (2016). Design and development of a learning management system for vocational education. Proceedings of the SouthEast European Design Automation, Computer Engineering, Computer Networks and Social Media Conference,

Kovalchuk, V. I., & Sheludko, I. V. (2019). Implementation of digital technologies in training the vocational education pedagogues as a modern strategy for modernization of professional education. *Annales Universitatis Paedagogicae Cracoviensis. Studia ad Didacticam Biologiae Pertinentia*, *no*(IX), 122-138. https://doi.org/10.24917/20837276.9.13

Marjani, B. (1994). Development course of technical and professional education in Iran. *Tehran: Vice-Chancellor of Technical and Vocational Secondary Education*

Munir, M., Sinambela, E. A., Halizah, S. N., Khayru, R. K., & Mendrika, V. (2022). Review of vocational education curriculum in the fourth industrial revolu-tion and contribution to rural development. *Journal of social science studies (jos3)*, *2*(1), 5-8. https://ejournal.metromedia.education/index.php/jos3/article/view/20

Navidi, A. (2019). A Critical Analysis of Iranian Training Programs for Techno-Vocational Teachers across Time [Research]. *Quarterly Journal of Education*, *35*(2), 107-128. http://qjoe.ir/article-1-1812-en.html

Rahmatullah, M., Mukhadis, A., & Hajji, A. M. (2017). Learning service satisfaction of master degree graduates of vocational education in State University of Malang. 1st International Conference on Vocational Education And Training (ICOVET 2017),

Rawkins, C. (2018). A global overview of TVET teaching and training: Current issues, trends and recommendations. *International Labour Organization*.

Rofiq, Z., Surono, S., Bruri Triyono, M., & Setiyo Hari Purwoko, B. (2019). Developing The Standard Competencies For Vocational Teacher Candidates Of Mechanical Engineering. *Journal of Physics: Conference Series*, *1273*(1), 012032. https://doi.org/10.1088/1742-6596/1273/1/012032

Sadeqi Fasai, S., & Erfanmanesh, I. (2015). Methodological Principles of Documentary Research in Social Sciences; Case of Study: Impacts of Modernization on Iranian Family. *Strategy for Culture*, *8*(29), 61-91. http://www.jsfc.ir/article_15066_85596675920158ac30c357262fd3b30d.pdf

Safi, A. (2008). The evolution of teacher education in contemporary Iran: past, present, and future. *Education Quarterly*, *4*(96), 1-31. http://ensani.ir/file/download/article/20120328152406-2024-18.pdf

Salleh, N. N. H. M., & Puteh, S. (2017). A Review of the 21st Century Skills in Technical Vocational Education and Training (TVET). *Advanced Science Letters*, *23*(2), 1225-1228. https://doi.org/10.1166/asl.2017.7546

Schmidtke, C., & Chen, P. (2012). Philosophy of Vocational Education in China: A Historical Overview. *Journal of Philosophy of Education*, *46*(3), 432-448. https://doi.org/10.1111/j.1467-9752.2012.00859.x

Spöttl, G., & Stolte, H. (2022). TVET Teacher Profile and Standards for a Master's Degree Programme. In F. Bünning, G. Spöttl, & H. Stolte (Eds.), *Technical and Vocational Teacher Education and Training in International and Development Co-Operation: Models, Approaches and Trends* (pp. 9-31). Springer Nature Singapore. https://doi.org/10.1007/978-981-16-6474-8_2

Syysnummi, P., & Laihonen, H. (2014). Top management's perception of knowledge management in a vocational education and training organization in Finland. *International Journal of Educational Management*, *28*(1), 53-65. https://doi.org/10.1108/IJEM-04-2013-0067

University, A. (2023). *Career and Technical Education Programs*. https://www.athens.edu/programs/career-technical-education

University, A. (2023). *Graduate School and International Education, Career and Technical Education*.

University, C. M. (2023). *Career and Technical Education Masters Degree Online Program*. https://www.ucmo.edu/academics/programs/masters-degrees/coe/career-technical-and-special-education/career-and-tech-ed/career-and-technology-education-ms/index.php

University, C. S. (2023). Education Cataloge. In.

University, F. (2022a). *Biology Faculty, ¬biology education master's course curriculum*.

University, F. (2022). Educational Sciences Faculty, technical and vocational education master's course curriculum.

University, F. (2022b). Educational Sciences Faculty. Elementary Education Master Course s Curriculum.

University, F. (2022c). English language teaching Faculty, English language teaching master's course curriculum.

University, F. (2022d). Humanities and Social Sciences Department. History education master's course Curriculum.
University, F. (2022e). Humanities and Social Sciences Department. Syllabus of the master's course in philosophy and logic education.
University, F. (2022f). Literature Fculty, Persian language and literature Master's Curriculum.
University, F. (2022g). Physical Education Faculty, Physical Education.Master's Course Curriculum.
University, F. (2022h). Physics Faculty¬, physics education master's course curriculum.
University, I. S. (2023). Academic Cataloge. https://coursecat.isu.edu/under graduate/allcourses/ct
University, I. S. (2023). Career and Technical Education Masters Degree. https://www.indstate.edu/academics/graduate/masters/cte
University, K. (2023). Master in Technical and Vocational Education and TraininProgram. https://ku.edu.np/program/mtvet
University, M. (2023). Monash University HandBook. https://www3.monash.edu/pubs/98handbooks/education/ed64.htm#Heading413
University, M. T. (2023). *TUM Institute for lifelong learning.Professional Master Programs. Master in Vocational Education and Innovation*. https://www.lll.tum.de/master-in-vocational-education
University, N. A. (2023). Academic Cataloge. https://catalog.nau.edu/Catalog/details?plan=CRTCHEDMED&catalogYear=2324&mobile=true#creq
University, N. M. (2023). Online Master of Education with Emphasis in Career and Technical Education. https://www.enmu.edu/academics/degrees-programs/graduate-programs/career-technical-education-ma
University, N. S. (2023). Master Science in Education.Career and Technical Education Online Programs. https://www.oswego.edu/programs/graduate/career-and-technical-education-msed
University, P. (2023). College of Education.Gradute Programs.Science in Career and Technical Education Masters Program. https://education.purdue.edu/graduate-students/prospective-students/graduate-programs/career-technical-education-masters-program
University, P. (2023). The School of Postgraduate Studies Indonesian education university. Master's Program in Technology and Vocational Education (MP-TVE). https://sps.upi.edu/master-in-vocational-and-technology-education
University, S. F. (2023). Master of Science in Vocational Education and Training. https://www.sfuvet.swiss/teaching-training/bsc-and-msc-vocational-education-and-training/master-science-vocational-education
University, T. (2023). Judith herb college of education. Career-tech education teacher licensure program.Masters degree in career tech. https://catalog.indstate.edu/preview_program.php?catoid=57&poid=10364&returnto=29
University, T. (2023). Master Degree Program.Career and Technical Education Master Program. https://www.temple.edu/academics/degree-programs/career-and-technical-education-msed-ed-cte-msed
University, T. H. O. (2023). Master of Tevhnical and Vocational Education Programs. https://uthmet.edu.my/mbv
University, V. T. (2023). College of Liberal Arts and Human Science. Master Program of Career and Technical Education Licensed Teachers. https://liberalarts.vt.edu/academics/graduate-programs/masters-programs/career-and-technical-education-for-licensed-teachers.html
University, W. (2023). UOW College Australia.Vocational Education and Training programs. https://www.uowcollege.edu.au/study/high-school/vet-programs
University, W. S. (2023). Career and Technical Education Programs Master Programs. https://www.uwstout.edu/programs/ms-career-and-technical-education-online
Univesity, C. F. (2023). *areer and Workforce Education Program*. https://ccie.ucf.edu/elhe/career-and-workforce-education
Wagiran, W., Pardjono, P., Suyanto, W., Sofyan, H., Soenarto, S., & Yudantoko, A. (2019). Competencies of future vocational teachers: Perspective of in-service teachers and educational experts. *Jurnal Cakrawala Pendidikan*, *38*(2), 387-397. https://doi.org/10.21831/cp.v38i2.25393
Wahyuni, D. S., & Sugihartini, N. (2021). The Core Competencies of Vocational High School Teachers In 21st Century Learning. 2nd International Conference on Technology and Educational Science (ICTES 2020),
Widiaty, I., & Ana, A. (2015). Vocational pedagogy in perspective vocational high school curriculum. *In 3rd UPI International Conference on Technical and Vocational Education and Training*, *no*(no), 97-100. https://doi.org/10.2991/ictvet-14.2015.22
Winther, E., & Achtenhagen, F. (2009). Measurement of vocational competencies — a contribution to an international large-scale assessment on vocational education and training. *Empirical Research in Vocational Education and Training*, *1*(1), 85-102. https://doi.org/10.1007/BF03546481
World University Ranking, W. (2023). https://www.timeshighereducation.com/world-university-rankings
Zakeri, A., Kord Noughabi, R., & Sadrolashrafi, M. (2010). A Survey of the Instructional-Learning Processes in Vocational Education. *Technology of Education Journal (TEJ)*, *4*(4), 227-237. https://doi.org/10.22061/tej.2010.315

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