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Teaching Reform and Innovative Practice of Dye Chemistry,Ecological Textiles and Green Dyeing and Finishing

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Abstract: With the increasingly serious global environmental problems,green environmental protection has become the focus of today's society.In the textile industry,the reform of dye chemistry teaching,the development of ecological textiles and the application of green dyeing and finishing technology are of great significance for the realization of sustainable development.Therefore,the teaching reform and innovative practice of dye chemistry,ecological textiles and green dyeing and finishing provide an important reference and demonstration for the training of outstanding talents in the new engineering light chemical engineering major,textile chemistry major and dyeing and finishing engineering major,and contribute to the green and sustainable development of the textile industry.

Keywords: Dye Chemistry,Ecological Textiles;Green Dyeing and Finishing,Teaching Reform;Innovative Practice

1. Overview of Dye Chemistry and Ecological Textile Teaching

Green dyeing and finishing and ecological textiles are closely related research fields,which are of great significance in material science and environmental protection.Dye chemistry mainly studies the molecular structure design,green synthesis and the structural relationship of the production process of dyes.Eco-textiles focus on the environmental impact of textiles during use and disposal,as well as how environmentally friendly textiles can be made from environmentally friendly materials.The research content of dye chemistry includes the relationship between the structure and properties of dyes,the synthesis method of dyes,the application technology of dyes,and the new technology in the production process of dyes.The research and development of dye chemistry not only provides rich color choices for the diversification of textiles,but also provides a variety of color schemes for other fields such as plastics,coatings,etc.

Ecological textiles focus on the study of the impact of textiles on the environment in the production,use and treatment process,and how to use environmentally friendly materials to produce environmentally friendly,low-carbon and energy-saving textiles.The research contents of ecological textiles include the life cycle assessment of textiles,the selection and substitution of environmentally friendly materials,the environmental protection technology in the production process of textiles and the waste treatment methods of textiles.The development of ecological textiles helps to reduce environmental pollution in the process of textile production and use,and improve the sustainability of textiles.There is a close relationship between dye chemistry and ecological textiles.The teaching reform and development of dye chemistry have provided rich and high-quality color selection and environmental protection material basis for ecological textiles,and the research of ecological textiles has promoted the development of dye chemistry in the direction of environmental protection.In today's era when the concept of environmental protection is increasingly popular,the development of both has important practical significance.

In terms of teaching,the teaching of dye chemistry and ecological textiles should pay attention to the combination of theoretical knowledge and practical application in the teaching process,so that students can understand the basic principles and practical application of dye chemistry and ecological textiles,and cultivate students'practical ability.In the teaching process,we should emphasize the importance of environmental protection concept,let students understand the significance of dye chemistry and ecological textiles to environmental protection,and cultivate students'environmental awareness.In the teaching process,emphasis should be placed on

the integration of interdisciplinary knowledge,so that students can understand the cross-application of dye chemistry and ecological textiles with other disciplines,and broaden their knowledge horizon.In the teaching process,we should pay attention to cultivating students'innovation ability,encourage students to innovate and explore the research in the field of dye chemistry and ecological textiles to enhance their innovation awareness and ability.

2. Development and Application of Green Dyeing and Finishing Teaching

2.1 Curriculum and teaching content update

Green dyeing and finishing technology is a product of sustainable development strategy in the dyeing and finishing industry,with its main goal of achieving environmental protection,energy conservation,and resource utilization in the dyeing and finishing production process.As a new dyeing and finishing technology,its curriculum should be set up and its teaching content should be updated in the teaching course.By offering courses related to green dyeing and finishing technology,such as green dye additives,environmental governance and protection,etc.students can understand the theoretical knowledge and practical skills of green dyeing and finishing technology,their innovation ability in the field of green dyeing and finishing can be cultivated and their ability to solve complex engineering problems can be improved.

2.2 Reform of practical teaching and experimental projects

The reform of practice teaching and experiment project is an important part of green dyeing and finishing technology teaching. By reforming the traditional experimental projects and introducing the experimental projects of green dyeing and finishing technology,such as the screening and application of environmentally friendly dyes and the operation and maintenance of energy-saving dyeing and finishing equipment,students can master the operational skills and application methods of green dyeing and finishing technology in practice.Teachers are the core force of green dyeing and finishing technology teaching,so it is necessary to strengthen the construction and training of teachers.Introducing excellent teachers with green dyeing and finishing technology background is to improve teachers'teaching ability and scientific research level.At the same time,teachers are encouraged to participate in training and academic exchange activities related to green dyeing and finishing technology to constantly enrich their own green dyeing and finishing teaching innovation practice.

2.3 Industry-University-Research Cooperation and the Construction of Practice Base

The industry-university-research cooperation and the construction of practice base are important supports for the teaching of green dyeing and finishing technology.Schools can establish industry-university-research partnerships with enterprises to provide internship and practice opportunities for students.At the same time,the construction of practice base can be strengthened to provide good experimental conditions and practice environment,and provide more practice opportunities for students.The construction of teaching materials and information teaching are important ways to improve the teaching quality of green dyeing and finishing technology.It can improve the teaching effect and students'learning experience through the compilation of relevant textbooks and handouts,such as the 14th Five-Year Plan textbooks"Dye Chemistry","Sustainable Development Dyeing and Finishing Technology","Ecological Textiles and Environmental dyeing and Chemical Materials",and the use of information teaching methods,such as online courses,online and flipped classroom teaching.The development and application of green dyeing and finishing technology need to reform and innovate from the aspects of curriculum setting,practical teaching,teacher team construction,industry-universal-research cooperation and textbook construction,so as to cultivate more green dyeing and finishing technical talents and promote the wide application and sustainable development of green dyeing and finishing technology.

3. Teaching Reform and Innovative Practice of Green Dyeing and Finishing

3.1 The importance of green dyeing and finishing teaching reform

In today's world,green dyeing and finishing,as an environmentally friendly,energy-saving,green and sustainable dyeing and finishing technology,has become an important direction for the development of textile printing and dyeing industry.Teaching reform and innovative practice of green dyeing and finishing are not only the requirement of the development of The Times,but also the need of the development of dyeing and finishing industry.With the development of global economy and the increasingly serious environmental problems,green dyeing and finishing technology has become an inevitable choice for the development of textile printing and dyeing industry.Therefore,the reform of green dyeing and finishing teaching is of great significance for training professionals to meet the needs of The Times.Under the background of global environmental protection and sustainable development,the reform of dye chemistry,ecological textiles and green dyeing and finishing teaching has become an important topic for the development of dyeing and finishing industry.

The reform of dye chemistry teaching needs to pay more attention to the cultivation of practical application and innovative ability.In the traditional dye chemistry teaching,the course content is often too theoretical and out of touch with the actual production and application.Therefore,it is an important task to reform the teaching content,strengthen the practical teaching,and improve the students'experimental skills and innovation ability.The reform of ecological textile teaching needs to pay more attention to the popularization of environmental protection and sustainable development concepts.Ecological textiles refer to textiles that have little impact on the environment,are renewable,degradable and recyclable in the process of production,use and disposal.In the teaching of ecological textiles,it is necessary to strengthen the popularization of environmental protection concept,guide students to pay attention to the life cycle of textiles,and improve students'environmental awareness and sustainable development concept.The reform of green dyeing and finishing teaching needs to pay more attention to technological innovation and coordinated development of industrial chain.Green dyeing and finishing refer to the use of environmental protection,energy saving,high efficiency and low carbon production technology in the dyeing and finishing production process to achieve efficient use of resources and environmentally friendly protection.

3.2 The goal and content of teaching reform of green dyeing and finishing

The goal of green dyeing and finishing teaching reform is to train professionals with innovative spirit and practical ability who can master green dyeing and finishing technology and promote the sustainable development of textile printing and dyeing industry.The contents of teaching reform include:The combination of theory and practice should be strengthened to improve students'practical ability;The combination of scientific research and teaching should be strengthened to improve teachers'scientific research ability;Exchanges and cooperation at home and abroad should be strengthened to improve students'international vision.In the teaching of green dyeing and finishing,it is necessary to strengthen the cultivation of technological innovation ability,encourage students to participate in scientific research projects,and improve students'practical ability and technological innovation ability.At the same time,it is necessary to strengthen the coordinated development of the upstream and downstream of the industrial chain,guide students to pay attention to the development trend of the textile industry chain,and improve students'awareness of the coordinated development of the industrial chain.The reform of dye chemistry,ecological textiles and green dyeing and finishing teaching needs to strengthen the cooperation between industry,university and research.Industry-university-research cooperation is an important way to promote the teaching reform of dye chemistry,ecological textiles and green dyeing and finishing.Through industry-university-research cooperation,teaching and practical production can be closely combined to improve students'practical ability and innovative ability. At the same time,industry-university-research cooperation also helps to promote technological innovation and industrial development in the industry.The teaching reform of dye chemistry and ecological textiles and green dyeing and finishing needs to start from many aspects,pay attention to practical application and innovation ability training,pay attention to the popularization of environmental protection and sustainable development concept,pay attention to technological innovation and coordinated development of industrial chain,and strengthen industry-university-research cooperation.Through these reform measures,we can provide strong talent support for the sustainable development and industrial upgrading of China's textile industry.

3.3 Strategies and methods of teaching reform of green dyeing and finishing

Updating the teaching content should be updated and bringing the green dyeing and finishing technology into the teaching system are to improve the students'green dyeing and finishing technology knowledge level.Reforming the teaching method and adopting project teaching,case teaching and practice teaching and other teaching methods are to improve students'practical ability and innovation ability.Strengthening the construction of teaching staff and introducing excellent green dyeing and finishing experts and teachers at home and abroad are to improve teachers'scientific research ability and teaching level.Strengthening industry-university-research cooperation and establishing cooperative relations with enterprises are to provide practical platforms for students and improve students'practical ability and employment competitiveness.Increasing government investment and enterprise support,broadening the source of funds are to solve the funding problem of green dyeing and finishing teaching reform.Strengthening the cultivation and introduction of talents is to improve the quality of talent training and solve the problem of talent shortage in the green dyeing and finishing industry.Strengthening the investment in scientific research and accelerating the research and development and application of green dyeing and finishing technology are to solve the challenges brought by the technological update of the industry.

The teaching reform and innovative practice of green dyeing and finishing are a systematic project,which requires the joint efforts of the government,enterprises,schools and society to cultivate more professionals with green dyeing and finishing technical knowledge and practical ability,and promote the sustainable development of the textile printing and dyeing industry.With the rapid development of science and technology and the increasingly serious global environmental problems,the teaching reform and innovative practice of

green dyeing and finishing have become an important topic for the development of textile dyeing and finishing industry.Green dyeing and finishing teaching refer to in the teaching process,we should pay attention to environmental protection,energy saving,sustainable development and other concepts,train students with knowledge and skills about green dyeing and finishing technology,equipment and management.This paper will discuss the teaching reform and innovative practice of green dyeing and finishing from the following aspects.

With the acceleration of industrialization,pollutants such as waste water,waste gas and waste residue produced by textile dyeing and finishing industry have caused serious impact on the environment.Therefore,the implementation of green dyeing and finishing teaching reform helps to improve the overall environmental protection level of the industry and reduce the pressure of environmental pollution.Textile dyeing and finishing industry in the production process,it is large that the consumption of raw materials,energy and other resources.Green dyeing and finishing teaching reform is helpful to improve resource utilization efficiency,reduce resource consumption and achieve sustainable development.With the continuous improvement of consumer requirements for product environmental protection,health,safety and other aspects,green dyeing and finishing technology and process has become an important direction for the development of textile dyeing and finishing industry.The teaching reform of green dyeing and finishing helps to train professionals with green dyeing and finishing technology and management ability to meet the development needs of the industry.In the teaching curriculum,the green dyeing and finishing technology,environmental protection regulations,sustainable development of new technology and other courses can be increased to improve students'environmental awareness and green dyeing and finishing technology level.

Conclusion:

The teaching reform and innovative practice of dye chemistry,ecological textiles and green dyeing and finishing are a challenging,demonstrative and forward-looking work.In this process,we need to constantly learn new knowledge,master new technologies,improve our research ability and innovation ability to meet the needs of social and economic development.The teaching reform and innovation practice of dye chemistry and ecological textiles and green dyeing and finishing is a long-term and arduous task,which requires our joint efforts to train more excellent professional and applied talents,and help the teaching reform of dye chemistry and ecological textiles and green dyeing and finishing and industry to innovate and upgrade.

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