

■ 国外优质职业教育资源教学用书

# 加拿大不列颠哥伦比亚理工学院 (BCIT)

## 全日制课程设置



许琳 主编



高等教育出版社  
HIGHER EDUCATION PRESS

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# 加拿大不列颠哥伦比亚理工 学院 (BCIT) 全日制课程设置

许    琳    主编

谷    丰    主审



高等教育出版社

## 内容简介

本书分概况、校历大事、服务项目、入门课程、基础课练习、技术学士学位、商学院、计算机分院、建筑工程分院、电气与电子科学技术分院、卫生科学分院、制造与工业机械分院、加工能源与天然资源分院、运输分院、课程描述几大部分,详细介绍了该校 2002—2003 年的课程设置和教学安排情况,资料十分丰富,对我国高职高专院校研究和借鉴 BCIT 的成功经验,进行教学改革、培养适应市场需要的人才大有益处。

本书可作为高职高专院校教师、教学管理人员进行专业设置、教学改革的参考用书。

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# 前 言

2000年6月,我由国家教育部财务司调任中国驻温哥华总领事馆教育参赞。温哥华连续多年被评选为全世界最适合人类居住的城市;而加拿大也以“高等教育为国民权力”的政策闻名于世。我十分珍惜在这个美丽的城市和国家工作的机会。20多年在教育战线综合部门的工作经历,使我对深入了解加拿大发达的教育体系充满了渴望。怀着极大的兴趣,我利用业余时间,查阅了不同类型高等学校的年鉴。我惊奇地发现,加拿大各高校的年鉴简直就是一部这所学校、甚至是同类高校的百科全书。于是,我计划选择几部有代表性的加拿大高等学校年鉴,择其精华,介绍给国内同行。希望通过研究这些年鉴,大家可以系统地了解加拿大高等学校全面运作的详尽情况,从而达到“解剖麻雀、窥探五脏”的真正效果。这种效果是任何短期出国考察团都不可能达到的。

不列颠哥伦比亚理工学院(BCIT)是加拿大规模最大的高等职业技术学院。该校现有在校生5万余人,其中全日制学生达16 000人。几十年来,它一直受到企业和社会的广泛好评和欢迎。历年来毕业生离校9个月内的就业率达到85%以上。越来越多的加拿大工商企业,在招收关键技术和管理人员时,都将BCIT的毕业生列为首选。在BCIT每年招收的入学新生中,来自其他著名综合大学的毕业生和转学生超过40%。也就是说,许多人虽然已获得学位或已在大学学习,但因找不到适当的工作而重新选择学习BCIT的职业技术教育与训练课程。

BCIT办学最突出的特点是,培养目标根据就业市场变化适时进行调整,课程设计和授课模式均根据企业需要实行弹性灵活机制,以使其学生同时具备就业和创业两种能力。该校年度经费中来自企业和社会的资金占总数的20%以上;其教师队伍专兼搭配合理,在1 300多名教师中兼职教师达560人。每个专业的课程设置,平均每两年就交由以企业界人士为主组成的专业指导委员会进行全面评估并提出改革方案;而每年各科教材内容的更新项目常多达百余个,更新率为约6%。为了加强与企业的纽带关系,该校长期坚持在自动化、电子、生物、制造、矿业及环保等技术领域与企业合作培养学生。所有这些办学特点,在其年鉴中基本上都有详尽的说明。

根据我国高等职业技术教育的实际情况,结合自身的相关经验和体会,从方便读者理解的角度出发,在原稿翻译的基础上,我们将BCIT年鉴(2002—2003)的内容进行了认真慎重的再加工。譬如,对其中很多章节作了更为清晰的描述;在不影响原版体例的前提下,对其中部分内容在顺序上作了适当调整;对个别不适合我国国情的内容作了删节;等等。为了突出主题,我们特将此年鉴冠以《加拿大不列颠哥伦比亚理工学院(BCIT)全日制课程设置》书名出版,以便帮助国内高等职业教育学校和有关管理部门深入了解加拿大高等职业技术教育的先进经验,为我国高职教育的改革和发展提供借鉴。

感谢教育部领导对出版此书的关怀和支持。本书编译稿初成时,周济部长即批示高教司负责同志阅研;王湛副部长评价其恰似一个“职业教育超市”,其课程设置为“菜单模式”,专业门类品种丰富,很值得国内同类学校研究借鉴。章新胜副部长也批示“可酌情推动中加合作办学”。

感谢教育部高教司、财务司和财政部教科文司对本书出版给予的大力支持。特别感谢高教司高职高专处处长李志宏同志的热忱和支持。他极力主张保持原书风格,最大限度地保留原书内容,以便读者品尝其“原汁原味”,进而全盘了解加拿大高职院校年鉴的制作体系。本书因而得以基本保留了英文原版的体例、内容和格式。

BCIT 校长托尼·诺尔斯(Tony Knowles)博士对中国很有感情,非常重视开拓与发展同中国的友好合作关系,并亲自领导和参与了多个 BCIT 与中国有关高校、国家部委及地方政府的合作项目。在此,我对他为促成此书出版而付诸的积极支持表示感谢。

谷丰博士(Lawrence Gu)20 世纪 80 年代毕业于清华大学,后来留学加拿大麦吉尔大学获得博士学位,并获加拿大注册工程师执照。他在 BCIT 任教授多年,现任 BCIT 技术培训中心副主任。我请他担任此书编译的审校工作,他以其在专业技术方面所独具的权威性和中英两种语言的娴熟功底,保证了其中内容的准确性。没有他的鼎力帮助,本书是不可能出版的。我表示衷心感谢!

感谢 Frank Hua 先生为此书翻译工作所做的重要贡献。

在本书编辑出版的过程中,得到了刘志鹏、王立峰、崔邦彦、郭军等诸多同志和朋友的大力支持和帮助,在此一并致谢。

对于高等教育出版社领导和同仁们的大力支持,责编黄燕女士的辛勤劳动,谨表示深深的谢意!

因时间仓促,不妥之处在所难免,欢迎读者提出宝贵意见。

许琳

2003 年 8 月



# Preface

In June 2000, I was transferred from the Finance Department of the Ministry of Education to be the Education Counselor to the Consulate General of the People's Republic of China in Vancouver, Canada. Vancouver has been chosen several times as the best city in the world to live, and Canada has been renowned for its principles which deem it a citizen's right to receive a higher education. I have cherished the opportunity to live and work in this beautiful city in Canada. My working experience in educational undertakings over the past twenty years has engendered in me a strong desire to further understand Canada's advanced education system. First, with great enthusiasm, I spent much spare time reading the academic calendars of various types of institutions of higher learning. I was surprised to find that the calendar of a college or university in Canada is virtually an encyclopedia of that school, and moreover, that category of schools. Thus, I made a plan to select a few calendars of typical Canadian colleges and universities, and to edit and to publish them for reference for my peers in the field of education in China. I sincerely hope that these calendars may provide a systematic understanding of the details of the overall operation of Canadian colleges and universities; by way of the Chinese proverb, "exploring the secret of all vital organs by dissecting a small sparrow." The efficacy gained by this method of analysis by case study could never be attained by a short-term investigative tour conducted by any group of people.

The British Columbia Institute of Technology (BCIT) is the largest vocational and technical institute in Canada. It has an enrolment of 50 000 students, of which 16 000 are full-time students. For several decades it has been highly esteemed by industry and the community. Over the years, the employment rate of its graduates within the first nine months after graduation has stayed above 85%. When recruiting key technological and managerial staff, many Canadian industrial and commercial enterprises make BCIT graduates their first choice. Of new students coming to BCIT every year, more than 40% are graduates or transferred students from other universities. That is to say, when students fail to find a job with their degree, or when they realize what they are currently pursuing is not a working degree, they choose to transfer or enroll in BCIT's technical courses or vocational training programs.

There are many distinguishing characteristics in BCIT's guiding principles. Its educational goals are duly adjusted to keep in line with changes in the labour market. Its curriculum design and

program modulation is flexible and variable according to the demands of the industries. While 20% of its total annual budget is covered by capital from industry and the community, it maintains a good proportion of full-time and part-time instructors: 560 out of 1 300 instructors have a part-time appointment. The curriculum for every discipline is revised once every two years following review by the Advisory Committee comprised mainly of members from industrial sectors. The annual revision of course materials for a single subject often amounts to more than one hundred items; a 6% revision rate. In order to strengthen its bond with industry, BCIT has maintained many long-term co-op programs with the industries in the fields of automotive, electronics, biotechnology, mechanical, mining, and environmental protection. These characteristics are explained in detail in the calendar.

Thus, we have chosen *BCIT 2003-2003 Calendar* for our first project. On the basis of our personal experience and knowledge on the subject, in compliance with the current educational needs, and for the optional convenience of readers, we have made a few adjustments to the original text. We have added descriptions to some chapters for clarity, rearranged the order of some narratives without altering the content, and omitted some parts unsuitable to our national condition. We have published it with the title, "*Curriculum of BCIT Full-time Programs*." We hope it may help Chinese advanced vocational and technical institutions and their administrations to understand and then be able to make use of their Canadian counterparts' experience in assisting the reform and development of Chinese advanced vocational and technical education.

We want to acknowledge the leaders of the Ministry of Education for their encouragement and support in the publication of this book. As soon as the first draft was ready, Honorable Minister Zhou Ji instructed persons in charge in the Department of Higher Education to make a comprehensive study of it. Vice Minister Wang Zhan rated it highly as a "Supermarket Guide to Vocational Education" and commented it that its "menu-type curriculum" with comprehensive and diversified fields of specialties is a good approach for domestic institutions to consider adopting. Vice Minister Zhang Xinsheng also gave an official recommendation to consider "promoting Chinese-Canadian ventures in cooperative educational institutions."

For their generous assistance to our project, we are very grateful to the Department of Higher Education and the Department of Finance of the Ministry of Education, and to the Department of Education, Science and Culture of the Ministry of Finance. Special thanks are due to Mr. Li Zhihong, Chief of the Division of Higher Vocational and Technical Education of the Department of Higher Education. The Chinese edition of this book retains the original layout, content and format of the English edition. This is mainly due to Mr. Li's insistence to preserving the original style, and retaining a maximum of the original content, in order to allow readers to savour the original taste and to fully understand the overall calendar-compiling system in Canadian advanced voca-

tional and technical institutions.

Dr. Tony Knowles, the President of BCIT, has been enthusiastic about Chinese current development. He has made great efforts in developing cooperative educational relationships between BCIT and China, and has been personally involved in several of BCIT's joint ventures with some Chinese institutions of higher education and three levels of government. I want to extend special thanks for his great support for the publication of this calendar.

Dr. Lawrence Gu graduated from Qinghua University in 1980s. Later on, he received his Ph. D. from McGill University, he is a Professional Engineer in Canada. He has been teaching at BCIT for many years and is currently the Vice President of Technology Training Associates of BCIT. I invited him to review and approve the Chinese edition. I relied on his skills on both English and Chinese languages and his genuine authority on technical specialties to guarantee the accuracy of the Chinese version. This book would not have been possible without his dedicated work. To him, I owe a profound debt of gratitude.

I am also very grateful to Mr. Frank Hua for his important contribution to the translation of this book.

In the process of translating and editing this book, Mr. Liu Zhipeng, Mr. Wang Lifeng, Mr. Cui Bangyan, Mr. Guo Jun and many other colleagues and friends have given me constant encouragement and support. To them, I want to extend sincere thanks.

One final word of appreciation is due to the leaders and colleagues of the Higher Education Press for their unfailing support, and in particular, to Madam Huang Yan, the editor responsible for this project, for her great enthusiasm and hard work.

For any editorial error, we ask for the understanding of our readers. Comment and suggestions are welcome.

Xu Lin  
August 2003

# 代 序

## 加拿大不列颠哥伦比亚省高等教育部部长 雪莉·邦德(SHIRLEY BOND)女士的致词

我深感荣幸为您推荐这部不列颠哥伦比亚理工学院(BCIT)中文版年鉴。

作为加拿大不列颠哥伦比亚省高等教育部部长,我谨向中加双方致力于此书编译和出版的所有工作人员表示衷心的祝贺。

BCIT 是加拿大综合性高等职业技术学院中的佼佼者。不列颠哥伦比亚省十分肯定该校对我省及海外工商界的重要贡献。BCIT 一贯领先群伦,其培养目标根据就业需求及时调整,课程设计对应企业需求极具弹性,授课模式高度配合企业人才标准。因此,该校长期保持其毕业生在各类行业中的高薪酬和高就业率。

我全力支持 BCIT 与中国在高等职业教育技术领域的合作。此书的出版将进一步提高中加两国对高等职业技术教育的作用及重要性的认识。

致以衷心的祝愿!

雪莉·邦德(SHIRLEY BOND)

部长

2003 年 9 月 25 日



**Personal Message from the  
Honourable Shirley Bond  
Minister of Advanced Education**

**British Columbia Institute of Technology  
Chinese Language Version of BCIT Calendar  
September 25, 2003**

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It gives me great pleasure to present this Chinese version of the British Columbia Institute of Technology (BCIT) academic calendar.

As the Minister of Advanced Education for the Government of British Columbia, Canada, I would like to congratulate the efforts of all those involved, both Chinese and Canadian, in developing this calendar.

BCIT is a leading polytechnic institution in Canada. The Government of British Columbia recognizes the important contribution of this institution to business and industry in our province and abroad. BCIT's leading edge job-ready education focus, with its dynamic, industry-driven curricula and flexible delivery model, consistently provides a high job placement rate for graduates entering rewarding, diverse careers.

I fully support the cooperation of BCIT with the Chinese educational institutions in polytechnic education. The publication of this calendar will initiate a higher awareness of the role and importance of polytechnic education in both Canada and China.

Sincerely,

Hon. Shirley Bond  
Minister

# 校长的话

**欢迎来到 BCIT 学习。**

我们的培养目标是：紧紧盯住全球市场，通过卓越的应用型教育、培训及科研活动，建造成功就业的广阔平台。

BCIT 提供各种全日制、业余学习课程，包括在技术与高等职业技术方面的各种结业证书、行业岗位证书和学位课程。

作为一所综合性工业学院，我们同时也为企业提供岗位培训与进修，并从事技术转让和应用型研究。

我们致力于与各行业建立稳固的合作关系，在企业的指导下不断更新我校的教育和培训内容，以适应不断变化的各种岗位要求。我们努力提供有价值的知识和有效的实践经历相结合的机会，这是全省、全国乃至世界范围内企业所最需要的。

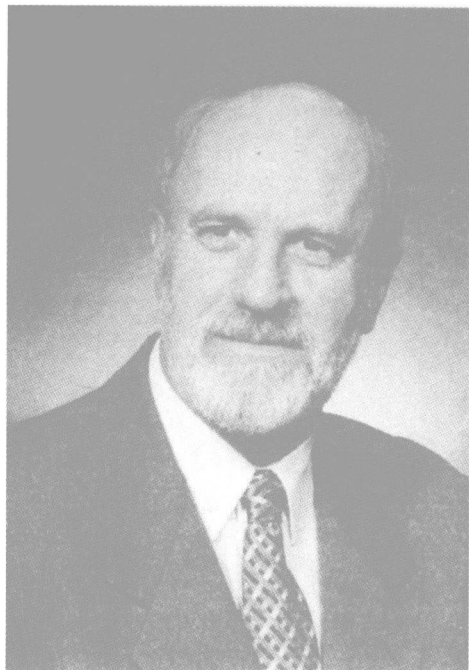
通过在 BCIT 的学习，我校成千上万的学生将把学到的技能应用于工作岗位中，从而为本省和加拿大的经济发展、创业和就业做出了贡献。

BCIT 将为你们的学习提供良好的服务，并将提供教室、实验室、实习车间以外的许多有益活动，以扩展你们的教育经历。同时，我鼓励你们参加各方面的校园生活，这是一种结交朋友和增加接触的极好方式，你们将会从中获益匪浅。

我代表 BCIT 的全体教职员祝你们在学习和未来的奋斗中取得成功。

托尼·诺尔斯(Tony Knowles)博士  
校长

# Message from the President



## WELCOME TO BCIT

Our mission is to build pathways for career success in the global marketplace through teaching excellence and applied education and research.

BCIT delivers full-time and part-time courses of study leading to certificates, diplomas, and degrees in technologies and trades. As a polytechnic institute, we also conduct applied research, technology transfer activities (the taking of ideas to the marketplace), and corporate and industry training and upgrading.

We work hard to build solid relationships with each industry our programs serve; with their guidance we know we are offering the skills that are needed in an ever-changing workplace. We strive to provide you with both valuable knowledge and practical experience, a combination that is in great demand by employers provincially, nationally and beyond.

Along the way, as thousands of learners like you take your skills to the workplace, we contribute through you to provincial economic, entrepreneurial and employment opportunities.

What you learn here will serve you well. Our BCIT community also offers many activities, services and opportunities for you to expand your educational experience beyond the classroom, lab or shop, and I encourage you to take full advantage of them. You'll make friends and contacts you'll value now and for years to come.

On behalf of the faculty and staff of BCIT, I wish you every success in your studies and in your future endeavours. We look forward to contributing to that success.

Tony Knowles, President

# 不列颠哥伦比亚理工学院(BCIT)校训

不列颠哥伦比亚理工学院(British Columbia Institute of Technology, 以下简称 BCIT)作为一所全省乃至全国范围的具有创新精神的高等学校,专门从事先进技术的教育及培训,注重增强本省的经济实力、提高企业家业务水平并为促进公民就业和再就业贡献力量。

不列颠哥伦比亚理工学院(BCIT)将:

- 通过提供全日制与业余学习课程来为社会储备具有活力的、高技能的劳动力。即:技术与高等职业技术课程证书、毕业证书和专科、本科学位的学习;行业委托培训与提高课程。
- 通过与行业合作并得到资助,努力开展技术创新和应用研究,推进商业化的技术转让。

## 课程、法规与服务的调整

不列颠哥伦比亚理工学院(BCIT)目前正在实施一些课程内容的修订,以便通过更有针对性的课程更好地为我们的学生服务。

尽管我们在出版本书时已经在保证其内容的准确性方面做出了我们所有的努力,但本院还是需要保留不经事先通知对认为必要的课程学习、服务和规则进行调整的权利。学院保留取消任何课程与服务的权利。

本教学目录仅供参考。本教学目录不能作为一种完整的关于所有工作程序、政策、规则与规定的声明,也不能解释为一种不可取消的学生与学院之间的合同。

要获得最新的课程安排情况,请访问不列颠哥伦比亚理工学院的网站:[www.bcit.ca](http://www.bcit.ca)。



## 用人单位指名要我们的毕业生<sup>\*</sup>

聪明的企业需要 BCIT 提供的,具备满足就业需要技能的人员。他们点名招收我们的毕业生。

只要看一下本地报纸上的就业栏目即可知道许多企业在他们的招工广告中专门要求 BCIT 学历。

那是一种令人无法拒绝的对 BCIT 实实在在的支持。现在“用人单位指名要我们的毕业生”这句话已经成为 BCIT 毕业证书和结业证书的同义词。

正是这句话真正成为 BCIT 的核心。这使得雇主、学生和家长更加强了对 BCIT 的就业准备课程的声誉与可信度的承认。

我们为我们的课程骄傲,为我们的毕业生骄傲,更为我们的行业声誉骄傲。BCIT 正在努力保证提供满足市场需求的各层次培训。

这就是为什么用人单位指名要我们毕业生的原因。

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\* 这句话是 BCIT 的办学旗帜。