

# IT - Programmer/Analyst

68-credit Associate of Applied Science Degree

## About the Program

In the IT - Programmer/Analyst program, students will learn web-based and visual programming, VB.net, SQL, Oracle, Java, information systems design, and operating systems management. Students will also take part in an internship through the cooperative education program to gain exposure to the information technology industry. Upon graduation, students will be skilled programmers ready to step into an entry-level job. With additional training, available at WCTC, opportunities for advancement are plentiful.

## Pearson VUE/Prometric Testing Center

WCTC is both a Pearson VUE and Prometric testing center. We are able to provide day and evening testing for most popular certifications that include:

- Cisco
- CompTIA
- Help Desk Institute
- Linux Professional Institute
- Microsoft
- VMware, Inc.

## Potential Job Titles

- Computer Programmer/Software Developer
- Application Software Developer
- Database Specialist
- Senior Programmer
- Associate Analyst
- Systems Analyst
- Programmer/Analyst

## Credit Transfer

Students may choose to continue their education at a four-year college or university such as Carroll College, Milwaukee School of Engineering, UW-Milwaukee, Cardinal Stritch University, University of Phoenix or Ottawa University. Articulation agreements exist that include junior standing. Visit [www.wctc.edu/transfer](http://www.wctc.edu/transfer) for specific information. Since the details of credit transfers change from time to time, be sure to contact the intended college or university to verify credit transferability.

Required Courses	Credits
<b>First Semester</b>	
150-191 Introduction to Networking	2
152-107 Introduction to Programming	2
152-110 Applications of Web Technology	2
154-135 Fundamentals of Support	2
801-196 Oral/Interpersonal Communication	3+
804-123 Math with Business Applications	3+
809-199 Psychology of Human Relations	3
<b>Total semester credits</b>	<b>17</b>
<b>Second Semester</b>	
101-111 Accounting I - Principles	4+
107-118 Information Systems Design	4
107-128 Operating Systems Management	3+
152-106 Basic Programming/Logic	4
801-195 Written Communication	3+
<b>Total semester credits</b>	<b>18</b>
<b>Third Semester</b>	
152-109 Visual Basic.Net/Database	4
152-114 Intro to SQL	3
804-189 Introductory Statistics	3
809-196 Introduction to Sociology	3+
Elective	3
<b>Total semester credits</b>	<b>16</b>
<b>Fourth Semester</b>	
102-151 Business Co-op I	3
152-134 Java Programming	4
152-170 Information Systems Project	4
809-195 Economics	3+
Elective	3
<b>Total semester credits</b>	<b>17</b>
+ Proficiency exam available	
<i>Curriculum is current as of catalog printing. The most current curriculum requirements for graduation will be provided upon admission to program, or review at <a href="http://www.wctc.edu">www.wctc.edu</a>.</i>	

## Admission Process

- Fill out a WCTC application
- Send \$30 non-refundable application fee
- Send high school transcript or GED/HSED
- Send any previous college transcripts
- Complete Skills Assessment test (COMPASS)
- Begin pursuing Financial Aid options

For more information, call 262.691.5200.

**IT - Programmer/Analyst Required Courses**

<b>101-111 Accounting I – Principles</b> 4	<b>152-110 Applications of Web Technology</b> 2	<b>801-196 Oral/Interpersonal Comm</b> 3
Learn the basic account cycle for both service and merchandising businesses. Discuss cash control, banking transactions, sales tax, and payroll. This course is designed for those without an accounting background or for those needing a refresher. Supplemental audiovisual and handout materials are available.	Explore the major software and hardware technologies used by businesses to leverage the world-wide web (WWW) for information and software application platform delivery. The course is designed as a common requirement for all IT degrees. Discover how the web's unique client-server architecture works and how it may be optimized for scalability, security and bandwidth. In addition, explore the evolution of the web from a Web 1.0-style static information-only site to the newer Web 2.0 and Web 3.0 concepts that blur the distinction between a web site and a standard software application. Among the many technologies examined are (X)HTML, CSS, JavaScript, Applets, Flash, Ajax, server-side code execution and languages and frameworks, n-tier server architectures, network hardware and software, content management and support requirements and hands-on applications and development basics.	Practice the necessary skills for effective speech delivery, listening, assertiveness, conflict resolution, teamwork, and general interpersonal communication.
<b>102-151 Business Co-Op I</b> 3	<b>152-114 Introduction to SQL</b> 3	<b>804-123 Math w Business Apps</b> 3
Focus on goal setting, interpersonal relationships, and project activities during this occupational experience. The WCTC instructor/coordinator will work closely with the work site supervisor toward common educational objectives. Prerequisites: Approval of Co-op Ed Office	Follow a step-by-step introduction to the topics concerning database concepts, basic SQL SELECT statements, table creation and management, constraints, data manipulation and transaction control, additional database objects, user creation and management, restricting rows and sorting data, joining data from multiple tables, selected single-row functions, group functions, sub queries and MERGE, views, formatting readable output, and exploring SQL topics in application development. This course covers the objective of Exam 1ZO-007, Introduction to Oracle 9i: SQL and the SQL portions of 1ZO-042 Oracle Database 10g: Administration. Prerequisites: 152-106 Basic Programming/Logic or 107-106 Basic Programming/ Logic or Equivalent work experience	Develop an understanding of real numbers, basic operations, linear equations, proportions with one variable, percents, simple interest, compound interest, annuity, apply math concepts to the purchasing/buying process, apply math concepts to the selling process, and basic statistics with business/consumer applications.
<b>107-118 Information Systems Design</b> 4	<b>152-134 Java Programming</b> 4	<b>804-189 Introductory Statistics</b> 3
Practice techniques used in computer programming and systems analysis and review the structure, lines of authority, and information needs of the business enterprise. Become familiar with system projects, including preliminary investigations, setting objectives, establishing costs and benefits, and collecting data. Discuss the design techniques used in the development of specifications for outputs, inputs, and files, as well as the techniques for developing procedures and controls of typical business systems. Prerequisites: 152-106 Basic Programming/Logic (or concurrent) and 801-196 Oral/Interpersonal Comm; or Equivalent work experience and 107-106 Basic Programming/Logic	A rigorous introduction to the Java J2SE programming language and object-oriented (OOP) programming concepts such as class responsibilities, composition, inheritance, interfaces, encapsulation and polymorphism. Design and build java desktop applications and applets using Sun Microsystems J2SE Java Development Kit and popular Integrated Development Environments. Explore the Java API (standard class libraries) and techniques for building graphical user interfaces and business logic. Prerequisites: 152-106 Basic Programming/Logic or 107-106 Basic Programming/ Logic and 152-109 Visual Basic.Net/Database or 107-109 Visual Basic.Net/Database or Equivalent experience	Display data with graphs, describe distributions with numbers perform correlation and regression analyses, and design experiments. Use probability and distributions to make predictions, estimate parameters and test hypotheses. Draw inferences about relationships including ANOVA.
<b>107-128 Operating Systems Management</b> 3	<b>152-170 Information Systems Project</b> 4	<b>809-195 Economics</b> 3
Study the functions and history of various operating systems. Discuss memory management, processor management, concurrent processing, device and file management. Understand network and system management while working with operating systems such as DOS, Windows, Unix (Linux), Macintosh, and limited midrange systems in hands-on lab exercises.	In a simulated work experience, work as a team to analyze a client need, plan project tasks, schedule work, and develop a small computer system. Provide written and oral progress reports. Prerequisites: 152-109 Visual Basic.Net/Database or 107-109 Visual Basic.Net/Database and 107-118 Information Systems Design or Equivalent work experience	Discuss the major institutions and principles that underlie the contemporary American economic system, and consider topics such as the free enterprise system, supply and demand, circular flow, government involvement, the Federal Reserve System, economic growth and development, the effects of international trade, comparative economic systems, and global economics. Prerequisites: COMPASS-Reading Skills or 858-775 Reading - Program Readiness or 838-105 Intro Reading & Study Skills or TABE Advanced Reading or Accuplacer Reading Comprehensi or College Proficiency - Reading or Grandfathered Rdg Requirement or ACT-Reading
<b>150-191 Introduction to Networking</b> 2	<b>154-135 Fundamentals of Support</b> 2	<b>809-196 Introduction to Sociology</b> 3
Study network types, topology, and media, as well as local area network issues dealing with operating systems, costs, and hardware. Gain hands-on experience in hardware and software work involved in networking. Experience in using the basic functions of a computer is necessary.	Apply problem solving techniques and communication skills in providing technical support to end users. Gain hands-on experience using service management applications. Learn various software applications and VoIP technology to log, track, maintain, and resolve computer issues. Understand how giving and receiving feedback, thinking critically, making effective decisions, and dealing with conflict will result in a successful interaction with computer end users.	Learn the basic concepts of sociology: culture, socialization, social stratification, multiculturalism, and the five institutions, including family, government, economics, religion, and education. Other topics include demography, deviance, technology, environment, social issues, social change, social organization, and workplace issues. Prerequisites: COMPASS-Reading Skills or 858-775 Reading - Program Readiness or 838-105 Intro Reading & Study Skills or TABE Advanced Reading or Accuplacer Reading Comprehensi or College Proficiency - Reading or Grandfathered Rdg Requirement or ACT-Reading
<b>152-106 Basic Programming/Logic</b> 4	<b>801-195 Written Communication</b> 3	<b>809-199 Psychology of Human Relations</b> 3
Learn basic programming logic and structures with a current industry language. Write interactive programs that solve business problems, and discuss file handling, sorting, writing reports, screen layouts, graphics, and utilities. Focus on problem solving using a top-down approach. Emphasize programming logic while preparing for subsequent languages.	Study and practice the transfer of information, ideas, and experiences in written form through reports, letters, memoranda, and other documents. Gain proficiency in the areas of organization, clarity, accuracy, and directness. Prerequisites: COMPASS-Writing Skills or ACT-English or ASSET-Writing Skills or Accuplacer Sentence Skills or TABE Advanced Language or 831-103 Intro to College Writing or 851-771 Writing-Program Readiness	Examine the principles of interaction as applied to human relations at home and on the job. Explore topics such as, self concept personality development, learning, motivation, emotions, stress, human relations processes, and special relationships. Prerequisites: COMPASS-Reading Skills or 858-775 Reading - Program Readiness or 838-105 Intro Reading & Study Skills or TABE Advanced Reading or Accuplacer Reading Comprehensi or College Proficiency - Reading or Grandfathered Rdg Requirement or ACT-Reading
<b>152-107 Introduction to Programming</b> 2	<b>Elective Options</b>	
Learn fundamental Object-oriented Programming (OOP) concepts: classes, objects, methods, properties, event handling, control logic, data structures, algorithms, concurrency and problem solving, with minimal exposure to language semantics. A unique drag-and-drop, graphical environment is provided, which results in mistake-free code generation. Learners hone problem solving skills while exploring concepts visually, and then seeing how these concepts translate to code. This is a common, required course for Programmer Analysts, Network Specialists and Computer Support Specialists. Degree-tailored language semantics will be introduced in the final weeks of the course.	107-030 Information tech Proj Mgmt Princ 152-171 Active server Pages .Net Basic	
<b>152-109 Visual Basic.Net/Database</b> 4		
Explore the professional software that details financial analysis, database management, communications, and various system software products that handle files and preserves data integrity at an advanced level. Prerequisites: 152-106 Basic Programming/Logic or 107-106 Basic Programming/ Logic		Any course at the associate degree level will meet the elective requirement.