IT Software and Application Development
Youth Apprenticeship

IT SOFTWARE AND APPLICATION DEVELOPMENT

IT Software and Application Development youth apprentices gain code writing, troubleshooting, and system security skills related to the development of software and applications.

Length of Apprenticeship: One year

REQUIRED COMPETENCIES

Youth apprentices must become proficient in both general employability and occupation-specific competencies. All of these, and examples of how each can be demonstrated, are found in the following pages. A total of 6 occupational competencies must be learned for this occupation. Employers may substitute out one of these and should write in the competency they are adding.   Youth apprentices must be evaluated on these competencies at least two times each year of their apprenticeship.

Competencies
1. Troubleshoot application issues
2. Create a database
3. Test application programming changes
4. Gather application software requirements
5. Write application code
6. Maintain information and system security

REGISTERED APPRENTICESHIP BRIDGING OPPORTUNITIES

The following Registered Apprenticeship is available in this area:
- IT Service Desk Technician
- IT Software Developer

There are several post-secondary pathway opportunities in this area. The following is a partial list.
- Software Development Specialist Technical Diploma
- Software Project Coordinator Technical Diploma
- IT Help Desk Support Specialist Technical Diploma

YOUTH APPRENTICE INFORMATION

Youth Apprentice Name	
YA Coordinator	
YA Consortium	
School District	

SIGNATURES

The On-the-Job Learning Performance Standards Guide includes a list of competencies youth apprentices learn through mentoring and training at the worksite.

Instructions for the Worksite Employers/Mentors and School-Based or YA coordinators: This document should be reviewed with the employer/mentor, school-based or YA coordinator on a regular basis with the youth apprentice to record progress and plan future steps to ensure completion of the required competencies. Mentors, school-based/YA coordinator, and the apprentice sign below.

Employer/Mentor

1st Evaluation (Required)	2nd Evaluation (Required)
Employer/Mentor Signature	Employer/Mentor Signature
Employer/Mentor	Employer/Mentor
Business/Company	Business/Company
Date Signed	Date Signed

3rd Evaluation (Optional)	4th Evaluation (Optional)
Employer/Mentor Signature	Employer/Mentor Signature
Employer/Mentor	Employer/Mentor
Business/Company	Business/Company
Date Signed	Date Signed

School-Based and/or YA Coordinator

1st Evaluation (Required) | **2nd Evaluation (Required)**

School-Based and/or YA Coordinator Signature	School-Based and/or YA Coordinator Signature
School-Based and/or YA Coordinator	School-Based and/or YA Coordinator
School District or Organization	School District or Organization
Date Signed	Date Signed

3rd Evaluation (Optional) | **4th Evaluation (Optional)**

School-Based and/or YA Coordinator Signature	School-Based and/or YA Coordinator Signature
School-Based and/or YA Coordinator	School-Based and/or YA Coordinator
School District or Organization	School District or Organization
Date Signed	Date Signed

Youth Apprentice

1st Evaluation (Required) | **2nd Evaluation (Required)**

Youth Apprentice Signature	Youth Apprentice Signature
Youth Apprentice	Youth Apprentice
School District / High School	School District / High School
Date Signed	Date Signed

3rd Evaluation (Optional) | **4th Evaluation (Optional)**

Youth Apprentice Signature	Youth Apprentice Signature
Youth Apprentice	Youth Apprentice
School District / High School	School District / High School
Date Signed	Date Signed

EMPLOYABILLITY SKILLS (TO BE COMPLETED BY YA EMPLOYER/MENTOR)

All youth apprentices must demonstrate the key employability skills listed below in order to complete the YA program. They do so by earning at least a "Meets Expectation" rating in each. **At least two evaluations are required each year of a youth apprenticeship.** More columns are included below for those who choose to conduct more frequent reviews.

1	*Working to Meet Expectations:* Needs improvement; requires much assistance and supervision; rarely displays this behavior
2	*Meets Expectations:* Meets entry-level criteria; requires some supervision; often displays this behavior
3	*Exceeds Expectations:* Exceeds entry-level criteria; requires minimal supervision; consistently displays this behavior

Employability Skills	Rating			
	Year One Evaluation Rating			
Competency and Rating Criteria	**Initial**	**Mid Year 1**	**Mid Year 2**	**Final**
1. Develops positive work relationships with others. *Examples of qualities and habits that the employee might exhibit include . . .* • Interacts with others with respect and in a non-judgmental manner • Responds to others in an appropriate and non-offensive manner • Helps co-workers and peers accomplish tasks or goals • Applies problem-solving strategies to improve relations with others • When managing others, shows traits such as compassion, listening, coaching, team development, and appreciation	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3
2. Communicates effectively with others *Examples of qualities and habits that the employee might exhibit include . . .* • Adjusts the communication approach for the target audience, purpose, and situation to maximize impact • Organizes messages/information in a logical and helpful manner • Speaks clearly and writes legibly • Models behaviors to show active listening • Applies what was read to actual practice • Asks appropriate questions for clarity	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3
3. Collaborates with others *Examples of qualities and habits that the employee might exhibit include . . .* • Works effectively in teams with people of diverse backgrounds regardless of sex, race, ethnicity, nationality, sexuality, religion, political views, and abilities • Shares responsibility for collaborative work and decision making • Uses the problem-solving process to work through differences of opinion in a constructive manner to achieve a reasonable compromise • Avoids contributing to an unproductive group conflict • Shares information and carries out responsibilities in a timely manner	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3

Employability Skills	Rating			
	Year One Evaluation Rating			
Competency and Rating Criteria	**Initial**	**Mid Year 1**	**Mid Year 2**	**Final**
4. Maintains composure under pressure *Examples of qualities and habits that the employee might exhibit include . . .* • Uses critical thinking to determine the best options or outcomes when faced with a challenging situation • Carries out assigned duties while under pressure • Acts in a respectful, professional, and non-offensive manner while under pressure • Applies stress management techniques to cope under pressure	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3
5. Demonstrates integrity *Examples of qualities and habits that the employee might exhibit include . . .* • Carries out responsibilities in an ethical, legal and confidential manner • Responds to situations in a timely manner • Takes personal responsibility to correct problems • Models behaviors that demonstrate self-discipline, reliability, and dependability	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3
6. Performs quality work *Examples of qualities and habits that the employee might exhibit include . . .* • Carries out written and verbal directions accurately • Completes work efficiently and effectively • Performs calculations accurately • Conserves resources, supplies, and materials to minimize costs and environmental impact • Uses equipment, technology, and work strategies to improve workflow • Applies problem-solving strategies to improve productivity • Adheres to worksite regulations and practices • Maintains an organized work area	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3
7. Provides quality goods or services (internal and external) *Examples of qualities and habits that the employee might exhibit include . . .* • Shows support for the organizational goals and principles by own personal actions • Displays a respectful and professional image to customers • Displays an enthusiastic attitude and desire to take care of customer needs • Seeks out ways to increase customer satisfaction • Produces goods to workplace specifications	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3
8. Shows initiative and self-direction *Examples of qualities and habits that the employee might exhibit include . . .* • Prioritizes and carries out responsibilities without being told • Responds with enthusiasm and flexibility to handle tasks that need immediate attention • Reflects on any unsatisfactory outcome as an opportunity to learn • Improves personal performance by doing something different or differently • Analyzes how own actions impact the overall organization • Supports own action with sound reasoning and principles • Balances personal activities to minimize interference with work responsibilities	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3

Employability Skills	Rating			
	Year One Evaluation Rating			
Competency and Rating Criteria	Initial	Mid Year 1	Mid Year 2	Final
9. Adapts to change *Examples of qualities and habits that the employee might exhibit include . . .* • Shows flexibility and willingness to learn new skills for various job roles • Uses problem-solving and critical-thinking skills to cope with changing circumstances • Modifies own work behavior based on feedback, unsatisfactory outcomes, efficiency, and effectiveness • Displays a "can do" attitude	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3
10. Demonstrates safety and security regulations and practices *Examples of qualities and habits that the employee might exhibit include . . .* • Follows personal safety requirements • Maintains a safe work environment • Demonstrates professional role in an emergency • Follows security procedures • Maintains confidentiality	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3
11. Applies job-related technology, information, and media *Examples of qualities and habits that the employee might exhibit include . . .* • Applies technology effectively in the workplace • Assesses and evaluates information on the job • Assesses training manuals, website, and other media related to the job	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3
12. Fulfills training or certification requirements for employment *Examples of this requirement may include . . .* • Participation in required career-related training and/or educational programs • Passing certification tests to qualify for licensure and/or certification • Participation in company training or orientation	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3
13. Sets personal goals for improvement *Examples of this requirement may include . . .* • Setting goals that are specific and measurable • Setting work-related goals that align with the organization's mission • Identifying strategies to reach goals • Reflecting on goal progress to regularly evaluate and modify goals	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3

OCCUPATIONAL COMPETENCIES
(TO BE COMPLETED BY YA EMPLOYER/MENTOR)

Youth apprentices must earn a rating of at least "MEETS EXPECTATIONS" in each competency by the conclusion of the apprenticeship. A total of 6 competencies, 5 must be from the list below. If necessary, employers can substitute one competency with another occupationally appropriate skill. That skill should be added to the competency list for assessment. **At least two evaluations are required each year of a youth apprenticeship.** More columns are included below for those who choose to conduct more frequent reviews.

1	*Working to Meet Expectations:* Needs improvement; requires much assistance and supervision; rarely displays this behavior
2	*Meets Expectations:* Meets entry-level criteria; requires some supervision; often displays this behavior
3	*Exceeds Expectations:* Exceeds entry-level criteria; requires minimal supervision; consistently displays this behavior

Occupational Competencies	Rating			
Competency and Rating Criteria	**Evaluation Minimum Rating of 2 for EACH Check Rating**			
	Initial	**Mid Year 1**	**Mid Year 2**	**Final**
1. Troubleshoot application issues • detect application issue • identify criticality of issue • use available diagnostic tools to identify root cause • identify possible issue solutions • test solution to confirm resolution • document troubleshooting results and solutions	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3
2. Create a database • create a database from model specifications • define data architecture • document data architecture • use CRUD (Create Read Update Delete) • populate the database created with test data	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3
3. Test application programming changes • follow defined test procedures • conduct testing based on business and design requirements • conduct unit testing, as required • conduct integration testing, as required • conduct regression testing, as required • conduct user-acceptance testing • document testing results	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3

Occupational Competencies	Rating			
Competency and Rating Criteria	**Evaluation** **Minimum Rating of 2 for EACH** **Check Rating**			
	Initial	**Mid Year 1**	**Mid Year 2**	**Final**
4. Gather application software requirements • define business problem to be solved by the application • perform workflow analysis • divide design specifications into logical process blocks • identify constraints • identify key functions and subsystems of the application • create flowcharts • assess appropriateness of software solution • create technical requirements documentation	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3
5. Write application code • define logic using a program flowchart • define logic using at least one alternative to flowcharting such as pseudo-coding • review design (e.g., peer and/or user walk-through) • build code • follow secure code practices • execute code • debug code • prepare code documentation • prepare unit testing plan • conduct unit testing and bug fixes • verify code meets project requirements	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3
6. Maintain information and system security • identify the impact of sensitive data exposure • use virus and malware protection tools • use strong passwords • monitor security of company and personal data	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3
Competency Substitute (if you replaced a competency above, note the competency and rating)	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3	☐ 1 ☐ 2 ☐ 3

Occupational Competencies	Rating			
	Evaluation **Minimum Rating of 2 for EACH Check Rating**			
Competency and Rating Criteria	**Initial**	**Mid Year 1**	**Mid Year 2**	**Final**
Comments:				

STATE OF WISCONSIN

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Department of Workforce Development