



## IT SOFTWARE AND APPLICATION DEVELOPMENT

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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

## COMPETENCIES

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Youth apprentices must complete a **total of 6** competencies. **Five** must be from the list below. If necessary, employers can substitute up to **1** competency with other occupationally appropriate skills. Those skills should be added to the competency list for assessment. Note that where necessary, skills can be simulated.

| Competencies  |
|---|
| <ol style="list-style-type: none"><li>1. Troubleshoot application issues</li><li>2. Create a database</li><li>3. Test application programming changes</li><li>4. Gather application software requirements</li><li>5. Write application code</li><li>6. Maintain information and system security</li></ol> |

## REGISTERED APPRENTICESHIP BRIDGING OPPORTUNITIES

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Some of the related instruction courses can bridge into the following registered apprenticeship:

- IT Service Desk
- IT Software Developer

## POST-SECONDARY PATHWAY OPPORTUNITIES

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There are several post-secondary pathway opportunities in this area. Following is partial list.

- Software Development Specialist Technical Diploma
- Software Project Coordinator Technical Diploma
- IT Help Desk Support Specialist Technical Diploma



# IT Software and Application Development

Youth Apprenticeship  
ON-THE-JOB LEARNING PERFORMANCE STANDARDS GUIDE

## YOUTH APPRENTICE INFORMATION

|                              |                                    |
|------------------------------|------------------------------------|
| <b>Youth Apprentice Name</b> |                                    |
| <b>YA Coordinator</b>        | <b>YA Consortium</b>               |
| <b>School District</b>       | <b>High School Graduation Date</b> |

## REQUIREMENTS

### Requirements

Youth apprentices must complete ALL the items listed below. Check completed areas.

- Competency checklist
- Employability Skills checklist (in this job book) or the DPI Employability Skills Certificate
- Related instruction equal to 1 high school credit or at least 3 college credits
- Minimum of 450 work hours

## HOURS

Record the hours the youth apprentice worked.

| Total Hours Employed | Company Name | Telephone Number |
|----------------------|--------------|------------------|
|                      |              |                  |
|                      |              |                  |
|                      |              |                  |
|                      |              |                  |

## CAREER PLANNING (THIS SECTION IS SUSPENDED FOR THE 2020-2021 SCHOOL YEAR.)

## SIGNATURES

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The Job Book includes a list of competencies youth apprentices learn through mentoring and training at the worksite. Rate the student's achievement of each competency below. Review this document on a regular basis with the youth apprentice to record progress and plan future steps to ensure completion of the required competencies. Mentors, instructors, and the apprentice sign below.

|                      |  |
|----------------------|--|
| Mentor Signature     |  |
| Mentor Signature     |  |
| Mentor Signature     |  |
| Instructor Signature |  |
| Instructor Signature |  |
| Apprentice Signature |  |

## EMPLOYABILITY SKILLS

Youth apprentices must demonstrate key employability skills.

The DWD YA program employability skills requirement may be attained and demonstrated through two processes.

1. If a student has successfully completed a Wisconsin Department of Public Instruction (DPI) State-Certified Cooperative Education, [Co-Op Employability Skill certification](#) then they have met the YA Employability Skills requirement.

Earned Wisconsin Employability Skills Certificate (checked if applicable) or,

2. Rate the ability of the youth apprentice to demonstrate the employability skills below.

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

The following skills are required of all youth apprentices.

| <b>Employability Skills</b>   | <b>Rating</b>                       |                          |                          |
|---|-------------------------------------|--------------------------|--------------------------|
|   | <b>Minimum Rating of 2 for EACH</b> |                          |                          |
|   | <b>Check Rating</b>                 |                          |                          |
| <b>Competency and Rating Criteria</b>   | <b>1</b>                            | <b>2</b>                 | <b>3</b>                 |
| 1. Develop positive work relationships with others<br><i>Examples of qualities and habits that the employee might exhibit include . . .</i> <ul style="list-style-type: none"> <li>• Interacts with others with respect and in a non-judgmental manner</li> <li>• Responds to others in an appropriate and non-offensive manner</li> <li>• Helps co-workers and peers accomplish tasks or goals</li> <li>• Applies problem-solving strategies to improve relations with others</li> <li>• When managing others, shows traits such as compassion, listening, coaching, team development, and appreciation</li> </ul> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. Communicate effectively with others<br><i>Examples of qualities and habits that the employee might exhibit include . . .</i> <ul style="list-style-type: none"> <li>• Adjust the communication approach for the target audience, purpose, and situation to maximize impact</li> <li>• Organizes messages/information in a logical and helpful manner</li> <li>• Speaks clearly and writes legibly</li> <li>• Models behaviors to show active listening</li> <li>• Applies what was read to actual practice</li> <li>• Asks appropriate questions for clarity</li> </ul>  | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> |

| Employability Skills  | Rating                                    |                          |                          |
|---|---|--------------------------|--------------------------|
| Competency and Rating Criteria  | Minimum Rating of 2 for EACH Check Rating |                          |                          |
|   | 1   | 2                        | 3                        |
| <p>3. Collaborate with others</p> <p><i>Examples of qualities and habits that the employee might exhibit include . . .</i></p> <ul style="list-style-type: none"> <li>• Works effectively in teams with people of diverse backgrounds regardless of sex, race, ethnicity, nationality, sexuality, religion, political views, and abilities</li> <li>• Shares responsibility for collaborative work and decision making</li> <li>• Uses the problem-solving process to work through differences of opinion in a constructive manner to achieve a reasonable compromise</li> <li>• Avoids contributing to an unproductive group conflict</li> <li>• Shares information and carries out responsibilities in a timely manner</li> </ul> | <input type="checkbox"/>                  | <input type="checkbox"/> | <input type="checkbox"/> |
| <p>4. Maintain composure under pressure</p> <p><i>Examples of qualities and habits that the employee might exhibit include . . .</i></p> <ul style="list-style-type: none"> <li>• Uses critical thinking to determine the best options or outcomes when faced with a challenging situation</li> <li>• Carries out assigned duties while under pressure</li> <li>• Acts in a respectful, professional, and non-offensive manner while under pressure</li> <li>• Applies stress management techniques to cope under pressure</li> </ul>   | <input type="checkbox"/>                  | <input type="checkbox"/> | <input type="checkbox"/> |
| <p>5. Demonstrate integrity</p> <p><i>Examples of qualities and habits that the employee might exhibit include . . .</i></p> <ul style="list-style-type: none"> <li>• Carries out responsibilities in an ethical, legal and confidential manner</li> <li>• Responds to situations in a timely manner</li> <li>• Takes personal responsibility to correct problems</li> <li>• Models behaviors that demonstrate self-discipline, reliability, and dependability</li> </ul>   | <input type="checkbox"/>                  | <input type="checkbox"/> | <input type="checkbox"/> |
| <p>6. Perform quality work</p> <p><i>Examples of qualities and habits that the employee might exhibit include . . .</i></p> <ul style="list-style-type: none"> <li>• Carries out written and verbal directions accurately</li> <li>• Completes work efficiently and effectively</li> <li>• Performs calculations accurately</li> <li>• Conserves resources, supplies, and materials to minimize costs and environmental impact</li> <li>• Uses equipment, technology, and work strategies to improve workflow</li> <li>• Applies problem-solving strategies to improve productivity</li> <li>• Adheres to worksite regulations and practices</li> <li>• Maintains an organized work area</li> </ul>                                 | <input type="checkbox"/>                  | <input type="checkbox"/> | <input type="checkbox"/> |

| Employability Skills  | Rating                                    |                          |                          |
|---|---|--------------------------|--------------------------|
| Competency and Rating Criteria  | Minimum Rating of 2 for EACH Check Rating |                          |                          |
|   | 1   | 2                        | 3                        |
| <p>7. Provide quality goods or services (internal and external)<br/><i>Examples of qualities and habits that the employee might exhibit include . . .</i></p> <ul style="list-style-type: none"> <li>• Shows support for the organizational goals and principles by own personal actions</li> <li>• Displays a respectful and professional image to customers</li> <li>• Displays an enthusiastic attitude and desire to take care of customer needs</li> <li>• Seeks out ways to increase customer satisfaction</li> <li>• Produces goods to workplace specifications</li> </ul>   | <input type="checkbox"/>                  | <input type="checkbox"/> | <input type="checkbox"/> |
| <p>8. Show initiative and self-direction<br/><i>Examples of qualities and habits that the employee might exhibit include . . .</i></p> <ul style="list-style-type: none"> <li>• Prioritizes and carries out responsibilities without being told</li> <li>• Responds with enthusiasm and flexibility to handle tasks that need immediate attention</li> <li>• Reflects on any unsatisfactory outcome as an opportunity to learn</li> <li>• Improves personal performance by doing something different or differently</li> <li>• Analyzes how own actions impact the overall organization</li> <li>• Supports own action with sound reasoning and principles</li> <li>• Balances personal activities to minimize interference with work responsibilities</li> </ul> | <input type="checkbox"/>                  | <input type="checkbox"/> | <input type="checkbox"/> |
| <p>9. Adapt to change<br/><i>Examples of qualities and habits that the employee might exhibit include . . .</i></p> <ul style="list-style-type: none"> <li>• Shows flexibility and willingness to learn new skills for various job roles</li> <li>• Uses problem-solving and critical-thinking skills to cope with changing circumstances</li> <li>• Modifies own work behavior based on feedback, unsatisfactory outcomes, efficiency, and effectiveness</li> <li>• Displays a "can do" attitude</li> <li>• Maintains confidentiality</li> </ul>   | <input type="checkbox"/>                  | <input type="checkbox"/> | <input type="checkbox"/> |
| <p>10. Demonstrate safety and security regulations and practices<br/><i>Examples of qualities and habits that the employee might exhibit include . . .</i></p> <ul style="list-style-type: none"> <li>• Follows personal safety requirements</li> <li>• Maintains a safe work environment</li> <li>• Demonstrates professional role in an emergency</li> <li>• Follows security procedures</li> </ul>   | <input type="checkbox"/>                  | <input type="checkbox"/> | <input type="checkbox"/> |

| Employability Skills  | Rating                                    |                          |                          |
|---|---|--------------------------|--------------------------|
| Competency and Rating Criteria  | Minimum Rating of 2 for EACH Check Rating |                          |                          |
|   | 1   | 2                        | 3                        |
| <p>11. Apply job-related technology, information, and media<br/><i>Examples of qualities and habits that the employee might exhibit include . . .</i></p> <ul style="list-style-type: none"> <li>• Applies technology effectively in the workplace</li> <li>• Assess and evaluates information on the job</li> <li>• Assesses training manuals, website, and other media related to the job</li> </ul>  | <input type="checkbox"/>                  | <input type="checkbox"/> | <input type="checkbox"/> |
| <p>12. Fulfill training or certification requirements for employment<br/><i>Examples of qualities and habits that the employee might exhibit include . . .</i></p> <ul style="list-style-type: none"> <li>• Participation in required career-related training and/or educational programs</li> <li>• Passing certification tests to qualify for licensure and/or certification</li> <li>• Participation in company training or orientation</li> </ul> | <input type="checkbox"/>                  | <input type="checkbox"/> | <input type="checkbox"/> |
| <p>13. Set personal goals for improvement<br/><i>Examples of qualities and habits that the employee might exhibit include . . .</i></p> <ul style="list-style-type: none"> <li>• Setting goals that are specific and measurable</li> <li>• Setting work related goals that align with the organization's mission</li> <li>• Identifying strategies to reach goals</li> <li>• Reflecting on goal progress to regularly evaluate and modify</li> </ul>  | <input type="checkbox"/>                  | <input type="checkbox"/> | <input type="checkbox"/> |

## COMPETENCIES

Youth apprentices must complete a **total of 6** competencies. **Five** must be from the list below. If necessary, employers can substitute up to **1** competency with other occupationally appropriate skills. Those skills should be added to the competency list for assessment. Note that where necessary, skills can be simulated.

### Rating Scale

3: Exceeds entry level criteria | Requires minimal supervision | Consistently displays this behavior

2: Meets entry level criteria | Requires some supervision | Often displays this behavior

1: Needs improvement | Requires much assistance and supervision | Rarely displays behavior

| Competency and Rating Criteria  | Minimum Rating of 2 for EACH Check Rating |                          |                          |
|---|---|--------------------------|--------------------------|
|   | 1   | 2                        | 3                        |
| <b>1. Troubleshoot application issues</b> <ul style="list-style-type: none"> <li>• detect application issue</li> <li>• identify criticality of issue</li> <li>• use available diagnostic tools to identify root cause</li> <li>• identify possible issue solutions</li> <li>• test solution to confirm resolution</li> <li>• document troubleshooting results and solutions</li> </ul>  | <input type="checkbox"/>                  | <input type="checkbox"/> | <input type="checkbox"/> |
| <b>2. Create a database</b> <ul style="list-style-type: none"> <li>• create a database from model specifications</li> <li>• define data architecture</li> <li>• document data architecture</li> <li>• use CRUD (Create Read Update Delete)</li> <li>• populate the database created with test data</li> </ul>   | <input type="checkbox"/>                  | <input type="checkbox"/> | <input type="checkbox"/> |
| <b>3. Test application programming changes</b> <ul style="list-style-type: none"> <li>• follow defined test procedures</li> <li>• conduct testing based on business and design requirements</li> <li>• conduct unit testing, as required</li> <li>• conduct integration testing, as required</li> <li>• conduct regression testing, as required</li> <li>• conduct user-acceptance testing</li> <li>• document testing results</li> </ul> | <input type="checkbox"/>                  | <input type="checkbox"/> | <input type="checkbox"/> |



| Competency and Rating Criteria  | Minimum Rating of 2 for EACH Check Rating |                          |                          |
|---|---|--------------------------|--------------------------|
|   | 1   | 2                        | 3                        |
| <p><b>4. Gather application software requirements</b></p> <ul style="list-style-type: none"> <li>• define business problem to be solved by the application</li> <li>• perform workflow analysis</li> <li>• divide design specifications into logical process blocks</li> <li>• identify constraints</li> <li>• identify key functions and subsystems of the application</li> <li>• create flowcharts</li> <li>• assess appropriateness of software solution</li> <li>• create technical requirements documentation</li> </ul>   | <input type="checkbox"/>                  | <input type="checkbox"/> | <input type="checkbox"/> |
| <p><b>5. Write application code</b></p> <ul style="list-style-type: none"> <li>• define logic using a program flowchart</li> <li>• define logic using at least one alternative to flowcharting such as pseudo-coding</li> <li>• review design (e.g., peer and/or user walk-through)</li> <li>• build code</li> <li>• follow secure code practices</li> <li>• execute code</li> <li>• debug code</li> <li>• prepare code documentation</li> <li>• prepare unit testing plan</li> <li>• conduct unit testing and bug fixes</li> <li>• verify code meets project requirements</li> </ul> | <input type="checkbox"/>                  | <input type="checkbox"/> | <input type="checkbox"/> |
| <p><b>6. Maintain information and system security</b></p> <ul style="list-style-type: none"> <li>• identify the impact of sensitive data exposure</li> <li>• use virus and malware protection tools</li> <li>• use strong passwords</li> <li>• monitor security of company and personal data</li> </ul>   | <input type="checkbox"/>                  | <input type="checkbox"/> | <input type="checkbox"/> |
| <p><b>Competency Substitute</b> (if you replaced a competency above, note the competency and rating)</p>  | <input type="checkbox"/>                  | <input type="checkbox"/> | <input type="checkbox"/> |

## RELATED INSTRUCTION

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Indicate which related instruction courses the youth apprentice completed:

| Course Title | Credits | Location |
|--------------|---------|----------|
|              |         |          |
|              |         |          |
|              |         |          |
|              |         |          |



# Post-Program Completion Survey

Youth Apprenticeship

Information captured on this form must be entered online using the Youth Apprenticeship Online System (YODA).

This form should be given to each student completing the Youth Apprenticeship program to capture information on the student's plans after leaving the program. The form should be filled out during the final meeting between the student, mentor, and Local Youth Apprenticeship Coordinator, where the final checklist is filled out and signed.

|                 |   |
|-----------------|---|
| Student Name    | Expected Date of High School Graduation |
| School District | GPA at End of YA Program                |

**Instructions:** Indicate if the student will continue to be employed, and then check the appropriate boxes. Please include internships, opportunities to work during school breaks, and other similar situations as offers of continued employment, even if they do not start immediately.

|   |        |   |     |
|---|--------|---|-----|
| <input type="checkbox"/> This student will be employed after completing the YA program. Check <input type="checkbox"/> Full time or <input type="checkbox"/> Part time. |        |   |     |
| <b>Check all that apply:</b>  |        | <b>Then, fill out the following information:</b>  |     |
| <input type="checkbox"/> Employment is related to YA program training   |        | Employment Wage:  |     |
| <input type="checkbox"/> Employment is with same YA employer*   |        | Employment Start Date:  |     |
| <input type="checkbox"/> Employment is seasonal and/or intermittent   |        | Position Title (optional):  |     |
| <input type="checkbox"/> Employment is an internship  |        | Industrial Sector <sup>†</sup> :  |     |
| <input type="checkbox"/> Employment is military   |        | <sup>†</sup> Based on employer's NAICS Code. If unknown, describe the employer's primary income-producing line of business below. |     |
| <input type="checkbox"/> Also entering post-secondary education/other training  |        |   |     |
| <input type="checkbox"/> Also entering a Registered Apprenticeship  |        |   |     |
| <input type="checkbox"/> Health/personal issues impacted ability for full employment  |        |   |     |
| <b><i>*If student accepted a job at a different employer, please provide that employer's contact information:</i></b>   |        |   |     |
| Employer Name   |        | Street Address  |     |
| City  | County | State   | Zip |

|   |
|---|
| <input type="checkbox"/> This student will not be employed after completing the YA program. |
|---|

| Check one:  | Then, check all that apply:  |
|---|--|
| <input type="checkbox"/> Student did not apply for further employment                 | <input type="checkbox"/> Entering post-secondary education or other training program |
| <input type="checkbox"/> Student applied, but was not interviewed                     | <input type="checkbox"/> Student unable to find an entry-level position to apply for |
| <input type="checkbox"/> Interviewed, but not offered employment                      | <input type="checkbox"/> Student had change in career interest or plans              |
| <input type="checkbox"/> Student was offered continued employment, but did not accept | <input type="checkbox"/> Health/personal issues prohibited employment                |
| <b>Other comments:</b>  |  |

|                         |                       |
|-------------------------|-----------------------|
| <i>MENTOR NAME</i>      | <i>COMPANY NAME</i>   |
| <b>Mentor Signature</b> | <b>Date Completed</b> |

DWD is an equal opportunity employer and service provider. If you have a disability and need assistance with this information, please dial 7-1-1 for Wisconsin Relay Service. Please contact the Division of Employment and Training at 888-258-9966 and press 6 to request information in an alternate format, including translated to another language.

