



education

Department:
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INFORMATION TECHNOLOGY

GUIDELINES FOR PRACTICAL ASSESSMENT TASK

2008

These guidelines consist 27 pages.

Contents

GUIDELINES FOR THE TEACHER	3
1 INTRODUCTION.....	4
A RESEARCH PROJECT	4
1. <i>What is the research project about?</i>	4
2. <i>Planning for the project</i>	4
2.1 Description	4
2.2 Requirements for the research project.....	5
3. <i>Instructions for the learners</i>	5
4. <i>Resources</i>	5
5. <i>Assessment of the research project</i>	6
6. <i>Recording and Reporting</i>	6
7. <u>Guidelines for managing the research project</u>	4
8. <u>Hints for the research project</u>	5
B PROGRAMMING PROJECT.....	7
1. <i>What is the programming project about?</i>	7
2. <i>Planning for the programming project</i>	7
2.1 Description	7
2.2 Development phases of the project	6
2.3 Requirements for the project.....	8
3. <i>Instructions for the learners</i>	8
4. <i>Resources</i>	8
5. <i>Assessment of the PAT</i>	9
6. <i>Recording and Reporting</i>	9
7. <u>Guidelines for managing the PAT</u>	8
INSTRUCTIONS FOR THE LEARNER	1
A RESEARCH PROJECT	1
1. <i>What is the research project</i>	2
2. <i>Planning for the research project</i>	2
2.1 Scenario - The Mobile world	2
2.2 What will you need to complete the project	2
B Programming Project	3
1. <i>Planning for the programming project</i>	3
1.1 Description	3
1.2 Phases of development	3
1.3 Resources required for the project	4
1.4 Requirements for the project	5
2. <i>Instructions for the different phases of the programming project</i>	6
ASSESSMENT TOOLS	1
ASSESSMENT TOOLS FOR THE RESEARCH PROJECT	2
Research Project: Criteria.....	2
ASSESSMENT TOOLS FOR THE PROGRAMMING PROJECT.....	3
Analysis & Design Phase 1: Criteria	3
<u>Coding & Implementation Phase 2: Criteria</u>	5
<u>Documentation & Evaluation Phase 3: Criteria</u>	8

Information Technology
Practical Assessment Task (PAT)
2008

Guidelines to the teacher

1 Introduction

The objective of the PAT is to allow the teacher to directly and systematically observe and evaluate applied competence of the learner. The PAT comprises the application of the knowledge, skills and values particular to Information Technology.

In Information Technology the PAT counts 25% of the total promotion/ certification mark for the subject (i.e. 100 marks out of 400 marks). It is implemented across the first three terms of the school year and should be undertaken as one extended task, which is broken down into different phases or a series of smaller activities.

The IT PAT comprises of two components:

- Research project
- Software development (programming) project

Project	Scenario	Out of:	Converted to:
Research	The Mobile World	40	20
Programming	School Event	200	80
		Total:	100

A Research Project

1. What is the research project about?

The research project of the Practical Assessment Task in Information Technology requires the learner to conduct and demonstrate in-depth research within the context of a given scenario. The learner is required to generate a report on his/her research/findings on a chosen topic within the context of the given scenario.

2. Planning for the project

2.1 Description

The project specification is open-ended, i.e. the learner may choose his/her own computer-related topic within the context of the given scenario.

Scenario

The Mobile World

One and a half billion people, all over the world, are walking around with powerful “computers” in their pockets and purses. The fact is that they often do not realize it, because these “computers” are often referred to by another device name. One such device could be today's high-end cell phones which have the computing power of a mid-1990s personal computer (PC). Marc Prensky, Innovate, June/July 2005

The learner is required to identify a topic to be researched from the above scenario.

The following are steps that may be followed during the research:

- Define the topic:
The learner has to describe what he/she plans to do in his/her research
- Identify how and where the information will be accessed.
Information must be extracted from a variety of sources.
- Use the information:
Clearly describe the different aspects of the topic. (Any material taken directly from websites or books must be acknowledged and placed in quotes.)
- Draw a conclusion:
Finish up the project by drawing some conclusions related to the research that was undertaken.

In completing the task the learner will present his/her research in the form of a report.

(Also see Annexure 1 in Learning Programme Guidelines as well as Annexure 1 in Subject Assessment Guidelines)

2.2 Requirements for the research project

The learner will present the report in the form of a document compiled using a word processor. The document (\pm 8 pages) must contain the following:

- Title page
- Table of contents
- Introduction – clearly stating what the topic is about
- Body – discussing the topic, using clear headings and sub-headings supported by graphics, data, etc.
- Conclusion
- Bibliography – Acknowledge all the sources used including television programmes, Internet sources, individuals, etc. The bibliography must be presented in alphabetical order of authors.
- Certificate of authenticity – A certificate signed by the learner and countersigned by the teacher to verify that the project is the learner's own work.

3. Instructions to the learners

See Learner Section of this document.

4. Resources

The learner will need the following resources to be able to complete the above project:

- Access to a computer with the necessary software.
- Access to the Internet and a search engine such as Google
- Access to electronic reference material such as Encarta
- Any other sources that will help the learner to find relevant information.

5. Assessment of the research project

See Assessment Tool Section for the assessment sheet.

The assessment tool as well as the instruction sheet for the research project must be supplied to the learners.

6. Recording and Reporting

- The project should be completed under **controlled conditions** in the classroom and facilitated and monitored by the teacher. Collecting of information could be done at home.
- Each teacher will determine the **deadline** for handing in the final product, taking into account the final date on which projects must be submitted for external moderation.
- After the final product is submitted, a mark out of 40 will be allocated and thereafter converted to a mark out of 20.

7. Guidelines for managing the research project

It is recommended that the learners complete the research project by the end of the first term. There are two ways to go about managing the research project:

Option 1:

- You could dedicate one or two periods per week for the research task, while continuing with teaching during the remainder of the periods to complete the Grade 12 curriculum.
If you choose this option, you will need approximately 8 - 10 weeks to complete the research project.

Option 2:

- You could choose to dedicate a continuous period of time to the research task i.e. either the first two weeks of the term or the last two weeks of the term.

It is suggested that you record the name and topic of each learner at the beginning of this process, to avoid “instant projects” that might pop up and could possibly not be the learner’s own work.

8. Hints for the research project

You can discuss the following example topic with learners to guide the learners in deciding which topic or focus area pertaining to the scenario they would like to address.

Example Topic – Mobile Learning

Defining the topic

Mobile learning, sometimes called m-learning, is learning accomplished with the use of small, portable computing devices. These computing devices may include: smartphones, personal digital assistants (PDAs) and similar handheld devices. There is some debate on the inclusion of tablet and laptop computers. Often, wireless two-way Internet connection is assumed as an integral component of mobile learning.

Possible focus areas that one can address:

- Discuss the devices in the context of mobile learning
- Benefits and challenges of using these devices
- Possible future trends

B Programming Project

1. What is the programming project about?

The programming project of the Practical Assessment Task in Information Technology requires the learner to develop a software solution for a particular problem within a given scenario.

2. Planning for the programming project

2.1 Description

Scenario for the 2008 Grade 12 PAT:

The school management team has approached the Grade 12 IT learners to develop a software solution to administer school-based events. The learners are requested to write a program in Java / Delphi that interacts with a database program and uses a GUI to interact with the user to solve the problem. In addition to the program, the learners also need to compile a technical manual and a user guide for the program.

The programming project is open-ended, i.e. the learner may choose his/her own topic or focus area within the context of the given scenario.

Examples of possible school-based events to choose from:

- A Grade 8 variety concert
- An athletics competition for Grade 8 learners to identify potential athletes
- RCL (Representative Council of Learners) elections
- Field trips
- Competitions e.g. LAN parties
- Soccer round robin, etc.

In completing the project the learner will apply the following skills

- Analysis and design
- Software development
 - Programming skills using the programming language studied
 - Database development
 - Graphical User Interface (GUI) design

2.2 Development phases of the project

The programming project will be completed in 3 phases indicated in the following table.

Phase	Marks	%
Phase 1: Analysis and Design	35	17.5
Phase 2: Coding and Implementation	115	57.5
Phase 3: Documentation and general evaluation	50	25

Documentation/evidence of what the learner did during each phase of development must be submitted at specified intervals.

Deadlines for handing in the final product of each phase will be set by the teacher. The product of each phase will be assessed and the marks will be recorded.

(Also see Annexure 1 in Learning Programme Guidelines as well as Annexure 1 in Subject Assessment Guidelines)

2.3 Requirements for the project

The learner needs to adhere to the following, minimum criteria:

Analysis and Design

- Description of the problem in his/her own words outlining the main aspects in one paragraph.
- Analysis of the problem – What are the requirements and what should the programming solution provide?
- Design a solution – how will the program / system meet the requirements? Provide a broad outline of the programming solution to the problem.

(See Learner section 2, Phase 1, and Assessment tool Phase 1)

Coding and Implementation

- The project must include the major development tools, i.e. database design and programming in an integrated manner. (Other applications could be integrated with these development tools)
- Other aspects of the programming project that will be assessed include:
 - Programming style
 - Graphical User Interface (GUI)
 - Use of Human-Computer Interaction (HCI) principles
 - Expertise required and functionality of the program
 - Robustness of the program including the use of defensive programming techniques
 - Whether the project matches its original aims and goals

(See Learner section 2 Phase 2, Assessment tool Phase 2)

Documentation and general evaluation

- Document the solution, installation procedures and hardware and software requirements – Technical Manual
- Compile a user guide
- Evaluate the following:
 - Time management of the learner – Did he/she meet all the deadlines?
 - Appropriateness of the solution in the context of the scenario.

(See Learner section 2 Phase 3, Assessment tool Phase 3)

3. Instructions to the learners

See Learner section of this document.

4. Resources

The learner will need the following resources to be able to complete the project:

- Access to a computer with the following programs:
 - Programming language: Java or Delphi
 - Word processor such as MS Word
 - Database software such as MS Access
- IDE (for Delphi it is part of the programming language but for Java you will need additional software such as JBuilder / Turbo JBuilder or Netbeans)

5. Assessment of the PAT

The task should be completed under controlled conditions in the classroom and facilitated and monitored by the teacher.

See Assessment Tool Section for the assessment sheets for the different phases.

The assessment tool as well as the instruction sheet for the each phase must be supplied to learners.

Learners should be allowed to reflect on the marks they have obtained and address mistakes they have made before completing the next phase.

Learners will be required to demonstrate their system for debriefing at the end of phase 3. Teachers can use this opportunity to evaluate and assess parts of the project.

Guidelines for the demonstration and internal evaluation of the project:

- The teacher must schedule dates and times for demonstrations. Allow at least 20 minutes per project for the demonstration as well as about 10 minutes for setting up the project and brief feedback from the teacher.
- The learner should hand in all the documentation before the demonstration takes place – at least one week in advance. The teacher should evaluate the documentation before the demonstration takes place.
- The demonstration must be done electronically on the computer.
- The learner must execute his/her computer program and show all the features of the program to the teacher for evaluation.
- The teacher can use test strategy provided in the technical manual as a guideline and ask the learner to perform parts of or all the test strategy.
- The teacher can require of the learner to execute other additional test procedures to make sure that the entire program is working correctly.
- The teacher can use the mark sheet for Phase 2 as a guideline and allocate marks accordingly during the demonstration.
- The teacher must identify random pieces of programming code (excluding the 10 % borrowed code) in the project. The learner must then explain the purpose and working of the randomly selected code to the teacher. This is done to ensure that learners did the coding themselves. A similar type of procedure will be followed during the external moderation. If the learner cannot explain the code used in the project, no marks can be awarded to the learner for the project.
- The learner must hand in the electronic copy of the project that was demonstrated. The teacher will use this copy to allocate any outstanding marks in order to finalise the mark.

NOTE: Once the product of a phase has been handed in and assessed that phase will not be re-assessed.

6. Recording and Reporting

The teacher will assess the phase, record the mark and give feedback to the learner

The marks for the different phases are added and converted to a mark out of 80 which will be the final mark.

7. Guidelines for managing the PAT

There are two ways to go about managing the programming project:

Option 1:

- Dedicate one or two periods per week to the programming project while simultaneously continuing with teaching to complete the Grade 12 curriculum during the rest of the week. If you choose this option, you will need approximately 14 - 16 weeks to complete the programming project

Option 2:

- You could choose complete most of the Grade 12 curriculum and then to dedicate a continuous period of time to the programming project

It is suggested that you “register” the learners’ topics (events) when they start with phase one to avoid “instant projects” that might occur and could possibly not be the learner’s own work.

Information Technology

Practical Assessment Task (PAT)

2008

Instructions to the learner

Practical Assessment Task (PAT) in Information Technology

The IT PAT comprises of two components:

- Research project
- Software development (programming) project

Project	Scenario	Out of:	Converted to:
Research	The Mobile world	40	20
Programming	School events	200	80
		Total:	100

A Research Project

1. What is the research project?

The research project of the Practical Assessment Task in Information Technology requires you the learner to conduct and demonstrate in-depth research on a chosen topic from a given scenario. You are required to generate a report on your research / findings within the context of the given scenario.

2. Planning for the research project

2.1 Scenario – The Mobile World

One and a half billion people, all over the world, are walking around with powerful “computers” in their pockets and purses. The fact is that they often do not realize it, because these “computers” are often referred to by another device name. One such device could be today's high-end cell phones which have the computing power of a mid-1990s personal computer (PC). Marc Prensky, Innovate, June/July 2005

You are required to identify a computer-related topic to be researched from the above scenario.

The following are steps that may be followed:

- Define the task
 - Describe what you plan to do in your research
- Identify how and where the information will be accessed.
 - Information must be extracted from a variety of sources.
- Use the information
 - Clearly describe the different aspects of the topic. (Any material taken directly from websites or books must be acknowledged and placed in quotes.)
- Draw a conclusion
 - Conclude by drawing some conclusions related to the research that was undertaken.

In completing the project you will present your research in the form of a report.

You will present the report in the form of a document done on a word processor. The document (± 8 pages) must contain the following:

- Title page
- Table of contents
- Introduction – clearly stating what the topic is about
- Body – discussing the topic, using clear headings and sub-headings supported by graphics, data, etc.
- Conclusion
- Bibliography Acknowledge the all the sources used including television programmes, Internet sources, individuals, etc. The bibliography must be presented in alphabetical order of authors.
- Certificate of authenticity – A certificate signed by the learner and countersigned by the teacher to verify that the project is the learner's own work.

2.2 What you will need to complete the project

You will need the following resources to be able to complete the above task:

- Access to a computer with the following the necessary software.
- Access to the Internet and a search engine such as Google
- Access to electronic reference material such as Encarta
- Any other sources that will help you to find relevant information.

2.3 Time management

The project must be completed under **controlled conditions** in the classroom and facilitated and monitored by the teacher. Collecting of information could be done at home.

The teacher will determine the **deadline** for handing in the final product.

B Programming Project

1. Planning for the programming project

1.1 Description

Scenario for the 2008 Grade 12 PAT:

The school management team has approached the Grade 12 IT learners to develop a software solution to administer such events. The learners are requested to write a program in Java / Delphi that interacts with a database program and uses a GUI to interact with the user to solve the problem. In addition to the program, the learners also need to develop a technical manual and a user guide for the program.

The programming project is open-ended, i.e. you may choose your own topic or focus area within the context of the given scenario.

Examples of possible school-based events to choose from:

- A Grade 8 variety concert
- An athletics competition for Grade 8 learners to identify potential athletes
- RCL (Representative Council of Learners) elections
- Field trips
- Competitions e.g. LAN parties
- Soccer round robin, etc.

In completing the project you will apply the following skills

- Analysis and design
- Software development
 - Programming skills using the programming language studied
 - Database development
 - Graphical User Interface (GUI) design

1.2 Development phases of the project

The programming project will be completed in 3 phases indicated in the following table:

Phase	Marks	%
Phase 1: Analysis and Design	35	17.5
Phase 2: Coding and Implementation	115	57.5
Phase 3: Documentation and general evaluation	50	25

Documentation / evidence of what you did during each phase of development must be submitted at specified intervals.

Dates for submitting the documentation / evidence will be set by the teacher.

Study the assessment tools beforehand to make sure that you have addressed all the relevant requirements according to the assessment tools.

Consider the feedback from the teacher indicated on the assessment tools and improve your work for the next phase accordingly.

1.3 Resources required for the project

You will need the following resources to be able to complete the project:

- Access to a computer with the following programs:
 - Programming language: Java or Delphi
 - Word processing such as Word
 - Database software such as Access
- IDE (for Delphi it is part of the programming language but for Java you will need additional software such as JBuilder/Turbo JBuilder or Netbeans)

1.4 Requirements for the project

The project must be completed under **controlled conditions** in the classroom and facilitated and monitored by the teacher.

You need to adhere to the following, minimum criteria:

Analysis and Design

- Description of the problem in your own words outlining the main aspects in one paragraph.
- Analysis of the problem – What are the requirements and what should the programming solution provide?
- Design a solution – how will the program / system meet the requirements? Provide a broad outline of the programming solution to the problem.

(See the following section Phase 1 and the Assessment tool Phase 1)

Coding and Implementation

- The project must include the major development tools, i.e. database design and programming in an integrated manner. (Other applications could be integrated with these development tools)
- Other aspects of the programming project that will be assessed include:
 - Programming style
 - Graphical User Interface (GUI)
 - Use of Human-Computer Interaction (HCI) principles
 - Level of expert programming
 - Functionality of the program
 - Robustness of the program including the use of defensive programming techniques
 - Whether the project matches its original aims and goals

(See the following section Phase 2 and the Assessment tool Phase 2)

Documentation and general evaluation

- Printout of source code including comments, installation procedures and hardware and software requirements – Technical Manual
- Compile a user guide
- Demonstration of final product and debriefing by the teacher.
- The teacher will evaluate the following
 - Your time management – Did you meet all the deadlines?
 - Appropriateness of the solution in the context of the scenario.

(See the following section Phase 3 and the Assessment tool Phase 3)

2. Instructions for the phases of the programming project

The instructions for the different phases are as follows:

PHASE 1: Analysis & Design

Due date: _____

In completing this phase you need to determine what the program / system should do and provide:

1. Problem Statement

- Describe / Explain in your own words the problem to be solved
- Give a possible / intended brief solution for the problem in your own words.

2. Obtain requirements for the program

- Conduct discussions with end-users, make notes, gather documents and draw conclusions from these
- Observe how the system currently works if possible, make notes.
- Make notes on inputs, processing and output that will be required.

3. Convert requirements into specifications

Give a broad overview of the solution in terms of:

- Inputs
- Processing
- Outputs

Note: Include the following in your overview

- Defensive programming techniques such as:
 - Data validation
 - Error messages
 - Exception handling
- Data structures to organise and store data
 - Database design
 - Data types, files, arrays, classes and objects etc.
- Graphical User Interface (GUI) design

4. Submit a document with the following:

- Description of the problem
- Evidence of methods used to gather information
- Program specifications (As listed above)
- Broad overview of solution to the problem

PHASE 2: Coding & Implementation **Due date:** _____

In completing this phase you will have to code the solution including the GUI as planned in the previous phase, create the data structures, debug and test the program. **Study the assessment tool for Phase 2 to make sure that your project meet the requirements.**

Suggested steps to follow to complete this phase:

1. Break up the broad solution as outlined in phase 1 into modules
2. Code / Create the GUI
3. Create the data structures to organise and store data.
4. Coding – Code the solution according to requirements and specifications (inputs, processing and outputs) compiled in the first fase.
5. Testing / Debugging – Ensure that the program runs correctly and is error free
 - Apply a **test strategy** to ensure that the program / system does what it should by using different ranges of data including extreme / erroneous test data.
6. Evaluate your program / system – Does the program do what it should / meet the requirements? Did you apply good programming principles?
 - Review program code. Has good programming principles been applied? Study the assessment tool for phase 2 intensively.
 - Does the program / system work properly?
 - Well-designed GUI?

Note: You are allowed to make use of borrowed code but it cannot exceed more than 10% of your programming code. This will typically be code to perform exceptional / unusual functions such as playing a video clip etc. **Your program will not be accepted by the teacher if the borrowed code exceeds the limit of 10%.**

PHASE 3: Documentation & Evaluation Due date: _____

In completing this phase, you will have to finalise the documentation pertaining to the solution:

1. Technical Documentation

The technical documentation / manual must include the following:

- General description the problem and broad solution to the problem as compiled in phase 1
- Database design. Screenshots of the design view of the fields and their data types of the different tables as well as the relationships between the tables or a description thereof.
- Printouts of the code for the unusual system functions used for example use of system clock / CD player.
- Specifications of test procedures and test results.
- Sample runs of the program with results: A printout of the results showing that typical data has been used. The program must also be tested with extreme or erroneous data.
- Full printed listing of source code of all modules

2. User Guide

The user guide should include the following:

- Title sheet and table of contents.
- Background to the project. Here the history of the development of the project should be described.
- How to use the software – detail depends on the complexity of the software and the user-friendliness of the interface and help functions.
- Scope and limitations of the program
- Hardware required to run the program (hard drive space, memory, CPU, special input devices, etc.)
- Software required in addition to the program itself, for example proprietary classes, operating system, etc
- Installation instructions.
- Files that are used and their contents. The format/layout of each file must be included.
- Detailed instructions for the user and a walk-through of the program.
- Input required. The exact format of the input should be specified, particularly if formatted input is being used, for example a date.
- Output / reports produced.
- Troubleshooting for potential problems
- Future developments. Given more resources, e.g. time and software, what additional features could be implemented?
- References and acknowledgements, especially where third party software were used.

3. Hand in:

- Electronic copy of programme and all applicable files e.g. data files, etc.
- Technical Manual
- User Guide

4. Demonstrate the program for evaluation and debriefing.**Guidelines for the demonstration of the project:**

- The teacher will schedule dates and times for demonstrations - about 20 minutes per project will be allowed.
- The learner should hand in all the documentation before the demonstration takes place – at least one week in advance.
- The demonstration must be done electronically on the computer.
- The learner must execute his/her computer program and show all the features of the program to the teacher for evaluation.
- The teacher can use test strategy provided in the technical manual as a guideline and ask the learner to perform parts of or all the test strategy.
- The teacher can require of the learner to execute other additional test procedures to make sure that the entire program is working correctly.
- The teacher can use the mark sheet for Phase 2 as a guideline and allocate marks accordingly during the demonstration.
- As part of the demonstration, the teacher must identify random pieces of programming code (excluding the 10 % borrowed code) in the project. The learner must then be able to explain the purpose and working of the randomly selected code to the teacher. This is done to ensure that learners did the coding themselves. A similar type of procedure will be followed during the external moderation. If the learner cannot explain the code used in the project, no marks can be awarded to the learner for the project.
- The learner must hand in the electronic copy of the project that was demonstrated. The teacher will use this copy to allocate any outstanding marks in order to finalise the mark.

5. Final general evaluation

The teacher will evaluate the following:

- Time management – did you meet all the deadlines?
- Utility value – Is your solution appropriate in the context of the given scenario?

Information Technology
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Assessment Tools

Assessment tool for the research project**Research Project****Name of learner:**

Research Project: Criteria			Possible Mark	Mark Obtained	
Introduction	The introduction describes the topic to be addressed:			6	
	6-5	4-3	2-1		
	Clearly described and unambiguous – clearly states what the purpose of the research is and what the reader can expect	The description is vague, leaving the reader unsure of what the purpose is	The description is so vague that no discernable purpose can be found		
Body	The body clearly describes the topic mentioned in the introduction			2	
	The body/paragraphs are arranged according to content			1	
	The body contains graphics/images/data to explain/support the content			2	
	Information flow in the body is logical and hangs together			1	
	Key concepts pertaining to the topic are clearly defined / explained			4	
	4	3-2	1		
	All key concepts.	Most of the key concepts	Less than 50% of the key concepts		
	Discussion of the topic			4	
	4	3-2	1		
	Comprehensive Shows good insight	Less comprehensive – minor shortcomings Shows some insight	Vague Shows little understanding		
	Relevance of information			4	
	4	3-2	1		
	All information relevant	Most information relevant.	Less than 50% of the information is relevant		
	Facts given are correct			4	
	4	3-2	1		
All the facts are correct	Most of the facts correct	Less than 50% of the facts correct			
Justification of topic addressed / Support of argument			3		
3	2	0			
Clear justification / motivation	Justification / motivation not always convincing	No justification / motivation			
Conclusion	The conclusion is related to the introduction – addresses the problem stated in the introduction			2	
	Main points are summarised			2	
	Reader is presented with a clear, well formulated, unambiguous conclusion that is related to the topic			2	
General	Topic chosen is appropriate in the context of the scenario			1	
	Title page is present			1	
	Table of contents is present			1	
	Bibliography included			1	
	Bibliography indicates a variety of sources			3	
	3	2	1		
	More than 2 sources	Two sources	Only one source		
Sources sited correctly			1		
Total:			45		
Convert to 20:					

Assessment tools for the programming project

Assessment for phase 1:

Name of learner:

Analysis Phase: Criteria			Possible Mark	Mark Obtained	
Problem Statement	The problem is clearly stated and described:			3	
	3	2	1		
	Clearly described and unambiguous – clearly states what the problem entails. Outline the aspects that should be solved	The description is vague, leaving the reader unsure of what the purpose of the system will be	The description is so vague that no discernable purpose can be found		
	A possible solution is given			3	
	3	2	1		
	Clearly described and unambiguous – a clear overview of a possible solution is given.	The description is vague, leaving the reader unsure of what the solution of the system will be.	The description is so vague that no discernable solution can be identified in the description.		
Requirements	Requirements:			3	
	3	2	1		
	Requirements clearly described / explained.	Requirements not as clearly described. Some questions not answered.	Vague description of requirements.		
	Evidence of collecting information regarding requirements e.g. questionnaires, sample documents, notes on interviews, etc.			1	
Requirements contribute to the solution of the problem			1		
Specifications	Overview of database design in terms of tables and fields			2	
	Inputs: Description of inputs			3	
	3	2	1		
	All inputs clearly described in terms of user input and other sources of input.	Most of the inputs described in terms of user input and other sources of input.	The description of inputs is vague and incomplete.		
	Format of input (e.g. date format yy/mm/dd)			3	
	3	2	1		
	Format of input clearly specified for all inputs specified where formats are required.	Format of input specified for most of the inputs specified where formats are required	Format of input specified for less than 50% of inputs specified where formats are required		
	Processes:			2	
	2	1	0		
	Clearly defined and satisfy all the requirements	Defined and satisfy most of the requirements	Not defined or do not satisfy the requirements		
Outputs:			2		
2	1	0			
Identified all the necessary outputs according to requirements	Identified most of the necessary outputs according to requirements	Not identified or do not satisfy the requirements			
Data validation indicated where applicable and meaningful			1		
Error messages associated with data validation identified where applicable			1		
Exception handling provided for where applicable			1		

Design	Data structures:			3	
	3	2	1		
	All the data structures are appropriate	Most of the data structures are appropriate	Less than 50% of the data structures are appropriate		
	GUI design: Input			3	
	3	2	1		
	Appropriate input-components listed to support accurate / valid input of data in all instances where required	Appropriate input-components listed to support accurate / valid input of data in most instances where required	Appropriate input-components listed to support accurate / valid input of data in less than 50% of instances where required		
	GUI design: Output			3	
	3	2	1		
	Appropriate output components identified in all instances where required	Appropriate output components identified in most instances where required	Appropriate output components identified in less than 50% of instances where required		
Total:				35	

Assessment for phase 2:

Name of learner: _____

Coding & Implementation Phase: Criteria				Possible Mark	Mark Obtained
Database is created appropriately and effectively				3	
3	2	1			
Appropriate number of tables to support effective solution	Could have more tables for a more effective solution	Only one table.			
3	3	1	3		
Fields with appropriate data types and field sizes	Data types of some of the fields not appropriate or some of the fields are too large	Data types of most of the fields not appropriate or most of the field sizes are too large			
3	2	1			
Correct primary keys and foreign key in related tables	Some of the primary keys or foreign key in related tables not appropriate	Most of the primary keys or foreign keys not appropriate.	3		
Descriptive field names in database				1	
Other data structures are used effectively and appropriately				2	
Variable / data structure names meaningful				1	
Effective and appropriate use of control structures – 2 marks each				4	
Selection, repetition					
Complex data processing used effectively and appropriately (processes not listed in content framework such as play video clips, borrowed code, etc				2	
Calculations used effectively and appropriately				2	
String manipulation used effectively and appropriately				2	
Use all the data structures effectively in programming				2	
No errors in processing				2	
Data flow and processes				4	
4	3	2	1		
Excellent interaction/ communication between modules / classes. Logical flow of events.	Proficient Communication between modules / classes with small flaws. Logical flow of events in almost all of the cases	Adequate Some communication between modules / classes. Logical flow of events in less than 50% of te program.	Limited communication between modules / classes. Almost no logical flow of events		
Re-use of code				4	
4	3	2	1		
Appropriate and effective re-use of code and/or methods Modules independent	Re-use of code and/or methods but not always appropriate / effective Modules not always independent	Re-use inappropriate / not effective. Modules could have been broken down into more modules	Linear programming No re-use of code and/or methods		
Solution algorithms				3	
3	2	1			
All solution algorithms used in solving problem are appropriate and effective	Most of solution algorithms used in solving problem are appropriate and effective	Less than 50% of solution algorithms used in solving problem are appropriate and effective			

	Output vs. requirements			3		
	3	2	1			
	Outputs meet all the requirements for the solution	Outputs meet most of the requirements for the solution.	Limited outputs which does not meet the requirements of the solution in most of the cases.			
		Structure of the output			3	
		3	2	1		
		Output always well structured, readable with headings and subheadings. Headings repeated on following page / screen where applicable	Output in most of the cases well structured, readable with headings and subheadings. Headings repeated on following page / screen in most of the cases where applicable.	Output is not well structured. Headings and or subheadings in most of the cases not well formulated or absent. Is often not repeated on following page / screen where applicable.		
		Format of output			3	
		3	2	1		
		All values formatted appropriately where applicable e.g. currency	Most values formatted appropriately where applicable e.g. currency	Less than 50% of values formatted appropriately where applicable e.g. currency		
Database interaction	Database connection string / path set up correctly and working			2		
	Database interacts with program in a meaningful way e.g. queries and reports			2		
	Reads data from table			2		
	Relationships between tables meaningful			2		
	Referential integrity			3		
	3	2	1			
	Applied in all relationships	Applied in most of the relationships	Applied in at least one relationship			
	Normalisation			3		
	3	2	1			
	2 NF (Remove redundant data)	1 NF All tables in 1 NF	Multiple tables Not all in 1 NF			
	Manipulate records (2 marks each up to maximum of 6 marks)			6		
	Insert, delete, sort Other: List					
	Manipulate fields (2 marks each up to maximum of 6 marks)			6		
Calculations on fields, change contents, display only certain fields Other: List						

Error handling and Testing	Program compiles successfully		2		
	Program receives input		2		
	Inputs are validated (coding and/or component properties)		3		
	3	2			1
	All inputs that should be validated are validated	Most of inputs that should be validated are validated			Less than 50% of inputs that should be validated are validated.
	Appropriate error messages are displayed		3		
	3	2			1
	Appropriate and user friendly error messages in all cases where data validation is applied	Appropriate and user friendly error messages in most of the cases where data validation is applied			Appropriate and user friendly error messages in very few of the cases where data validation is applied
	Program gives output		2		
	Program gives correct output / what is expected		3		
	3	2			1
	Program gives correct as well as appropriate output in all cases.	Program gives correct and appropriate output in most cases.			Program gives correct and appropriate output in less than 50% of the cases. .
	Exception handling		2		
	2	1			
Effective and appropriate use			Used		
GUI	Different screens used		2		
	Components used for input		2		
	2	1			
	All components on all input screens are appropriate for the application		Most of the input components are appropriate for the application.		
	Components used for output		2		
	2	1			
	All output components on all the screens are appropriate for the application.		Most of the output components are appropriate for the application.		
	Labels / prompting with exact formats for input		2		
	2	1			
	Applied constantly throughout the entire project where required.		Applied in most of the cases where required.		
	Good layout		2		
	2	1			
	For all screens		Most of the screens		
	Output / Reports are informative and easy to read		2		
	2	1			
	For all output, all screens		Mmost of the screens		
	Type of input / output grouped together (e.g. address information)		2		
	2	1			
	For all screens		For most of the screens		
	Easy to navigate between screens		2		
Help available		1			
Context sensitive help available		1			
Design considers type of user (age, etc)		2			
Total:			110		

Assessment for phase 3:

Name of learner: _____

Documentation and Evaluation Phase: Criteria			Possible Mark	Mark Obtained	
Technical documentation	Database design clearly shown and explained		2		
	Description of other data structures used		2		
	Relationship between modules / programs		2		
	Communication between modules / programs		2		
	Description of unusual coding – functions, calculations, etc.		1		
	Specification of test procedures and test results		2		
	Error recovery and troubleshooting		1		
	Sample runs with results		1		
	Listing of source code		1		
User Guide	Title sheet		1		
	Table of contents		1		
	Background to the project (personal motivation and choice)		2		
	Introduction to the project		2		
	Project scope and limitations		1		
	User input requirements / formats		1		
	Output / reports produced (screen dumps included)		1		
	Detailed instructions and walk-through				
	3	2	1		
	All the steps to be followed when using the program clearly indicated and supported by screen dumps where required. Well structured with a logical flow. Well formulated – easy to understand.	Most of the steps to be followed when using the program clearly indicated and some screen dumps where required. Not always well structured and not always a logical flow. Not always formulated well	Only a few of the steps to be followed when using the program is indicated. No screen dumps. Not well structured. Not formulated well.	3	
	Hardware required to run program (1 mark each up to max of 3 marks)		3		
	Hard drive space, memory, CPU, special devices - list				
	Software requirements listed		1		
	Installation instructions given		1		
List of files required		2			
User troubleshooting		2			
Future developments / extensions described		2			
Acknowledgement		2			
General Evaluation	Time Management:				
	5	4-3	2-1		
	All deadlines met – all 3 phases. All the required work was done.	Met 2 deadlines. Submitted on time but some of the work was not done.	Met one deadline. Submitted on time but most of the work was not done.	5	
	Appropriateness of solution in the context of the scenario				
	3	2	1		
	Most appropriate Good application for scenario	Appropriate Application in scenario not always convincing	Less the 50% appropriate Application in scenario not convincing	3	
Real-life application of system					
3	2	1			
The solution is a working system that can be applied in a real situation	The solution is a system that can be applied in a real situation with some fine tuning	Some parts can be applied in the real situation	3		
Total:			50		