ICPKN315B:
Apply knowledge and requirements of the multimedia sector

Student Handbook
## Modification History – Competency Handbooks

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<tr>
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### Forms Control:

All documents related to the delivery or assessment of ICA20105: Cert II in Information Technology will have a version number displayed in the footer of the document. This Modification History page will appear after each title page of a handbook to ensure that the materials involved in the delivery and assessment of the certificate remain in a constant state of ongoing review and improvement.

Comments on changes will only show sufficient detail to enable a user to identify the nature and location of the change. Documents will be reviewed at least on an annual basis at the official internal review and fellow instructors and industry representatives will be consulted throughout the year in informal discussion.
UNIT CODE: ICPKN315B

UNIT TITLE: Apply knowledge and requirements of the multimedia sector

Description

This unit defines the performance outcomes, skills and knowledge required to work in or deal with the multimedia sector of the printing industry.

Elements of Competency

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<th>ICPKN315B/01 Apply knowledge of multimedia and the printing industry</th>
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<th>ICPKN315B/02 Apply knowledge of government acts and regulations</th>
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<td>2.1 Basic principles and obligations involved in copyright, OHS, environmental protection, access and equity and industrial awards are understood in relation to the workplace</td>
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<td>2.2 The basic principles and obligations involved in copyright, OHS, environmental protection, access and equity and industrial awards are followed in personal work practices</td>
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<th>ICPKN315B/03 Apply knowledge of pre-press processes</th>
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<td>3.2 Different types of images (line, half-tone), digital and their use are understood and used as required</td>
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<td>3.3 Different output settings eg screen rulings and angles, shapes, and how they affect the final product are understood and used as required</td>
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<td>3.4 The different types of output required for different media and printing processes are understood and used in the production processes where applicable</td>
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<td>3.5 Different output devices eg film setters, plate, analogue proofs, digital proofs are understood and used in the production process where applicable</td>
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<th>ICPKN315B/04 Apply detailed knowledge of multimedia techniques and requirements</th>
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<td>4.1 Designs that are appropriate or inappropriate for multimedia are understood and applied to the development process, where applicable</td>
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**ICPKN315B/05   Apply knowledge of colour theory**

| 5.1 | Colour theory of additive colours (light), RGB, is understood and used to inform design decisions |
| 5.2 | Colour theory of subtractive colours (pigments), CMYK, is understood and used to inform design decisions |
| 5.3 | The relationship between ranges of visual colour RGB and CMYK is understood and used to inform design decisions |
| 5.4 | The relationship between hue and greyness for tone and colour correction is understood and used to inform design decisions |

**ICPKN315B/06   Apply basic knowledge of costs of production**

| 6.1 | The main cost elements (fixed, capital and variable) in multimedia production are understood and used to inform development decisions |
| 6.2 | The information required to accurately cost jobs and the means of collecting it (manual and computerised) are understood and used to inform development decisions |
| 6.3 | Ways of minimising use of materials without affecting the quality of output are understood and used to inform development decisions |
| 6.4 | Ways of maximising efficiency of capital and human resources are understood and used to inform development decisions |

**ICPKN315B/07   Demonstrate basic knowledge of production management requirements and systems**

| 7.1 | The types of information that need to be exchanged between different stages of production to facilitate production efficiency are understood and used to inform development decisions |
| 7.2 | Systems (manual and computerised) that can be used to exchange information are understood and used in the workplace |
| 7.3 | The basic principles of efficient production management is understood and used to inform development decisions |
Printing Industry

Printing is a process for reproducing text and image, typically with ink on paper using a printing press. It is often carried out as a large-scale industrial process, and is an essential part of publishing and transaction printing.

**Offset printing** is a widely used printing technique where the inked image is transferred (or "offset") from a plate to a rubber blanket, then to the printing surface. When used in combination with the lithographic process, which is based on the repulsion of oil and water, the offset technique employs a flat (planographic) image carrier on which the image to be printed obtains ink from ink rollers, while the non-printing area attracts a film of water, keeping the non-printing areas ink-free.

Currently, most books and newspapers are printed using the technique of offset lithography. Other common techniques include:

- *flexography* used for packaging, labels, newspapers.
- *hot wax dye transfer* used for packaging, labels, newspapers.
- *inkjet* used typically to print a small number of books or packaging, and also to print a variety of materials from high quality papers simulate offset printing, to floor tiles; Inkjet is also used to apply mailing addresses to direct mail pieces.
- *laser printing* mainly used in offices and for transactional printing (bills, bank documents). Laser printing is commonly used by direct mail companies to create variable data letters or coupons, for example.
- *pad printing* popular for its unique ability to print on complex 3-dimensional surfaces.
- *relief print*, (mainly used for catalogues).
- *rotogravure* mainly used for magazines and packaging.
- *screen-printing* from T-shirts to floor tiles.

Activity 1

Research three of the printing options listed above in the dot points and state how they are used in today’s society, and how they work. Type in a Word document (hint – try Wikipedia for easy information).

Pre-Press Production

Various press companies have different processes for getting a document to the machines for printing. Consider the following example of a typical newspaper:

**Weekly Routine**

The Mirror staff meets weekly on Thursdays at 6pm in the office to discuss the week's issue and to plan stories for the following week.

Until October 2007, The Mirror had been produced (completion of all copy editing, layout, and pre-press processing) on Tuesday nights beginning around 5pm and concluding as late as 6am Wednesday morning, the printer's deadline for timely delivery. That month, having found difficulty completing the pages on time due to unprecedentedly large page counts, the staff split production between Monday and Tuesday nights. Managing editors mandated that section editors complete 90% of their pages before leaving on Monday, leaving only last minute photos and deadline stories for addition on Tuesday nights.
When the staff finishes the paper on Tuesday night/Wednesday morning, the Editor in Chief transmits the page files via File Transfer Protocol to the printing press.

Pages are burned onto plates almost immediately and the press run of 4,000 lasts for about a half hour. The finished papers are delivered to the Distribution Center loading dock by noon on Wednesday, sometimes less than six hours after file transmission.

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**Activity 2**

*Investigating Adobe InDesign*

Open Adobe InDesign and explore the program. Try to replicate the article attached to this booklet (See *Attachment A*). Save similar pictures from the web and try to use the program to get a close match. Notice the desktop publishing design features of the page – do you think it is well designed? Why?

**Copyright Infringement**

Copyright infringement (or copyright violation) is the unauthorized use of material that is covered by copyright law, in a manner that violates one of the copyright owner's exclusive rights, such as the right to reproduce or perform the copyrighted work, or to make derivative works.

Copyright gives the author of an original work exclusive right for a certain time period in relation to that work, including its publication, distribution and adaptation, after which time the work is said to enter the public domain. Copyright applies to any expressible form of an idea or information that is
substantive and discrete and fixed in a medium. Some jurisdictions also recognize "moral rights" of the creator of a work, such as the right to be credited for the work. Copyright is described under the umbrella term intellectual property along with patents and trademarks.

Activity 3

How does Copyright law affect the printing of multimedia? Research on the Internet with respect to Australian Copyright Law and comment.

Environmental Protection

Environmental protection is a practice of protecting the environment, on individual, organisational or governmental level, for the benefit of the natural environment and (or) humans. Companies have an obligation to help protect the environment. Recycling of materials, reduction of waste products, reduction of pollution and safe disposal of harmful products are all issues within the print industry.

Activity 4

Access the following website and read the article: Environmental Protection in the Printing Industry. Answer the questions below in a Word document.

Website: http://www.amazines.com/Publishing/article_detail.cfm?articleid=235175

1. Materials and Chemicals are the two major concerns for the printing industry and environmental protection. Why is this?

2. With Offset Printing, what sort of printing plates are now used, what was used in the past and why has it changed?

3. Retype this sentence, filling in the blanks:

   "Print Finishing: This includes the operation of coating, ____________, folding, stitching, gluing, ____________, and so on, the ____________ effects are same to those of printing. Here _______ sheets, paper cutting and die-cutting ____________, and packaging materials are ________________.”

4. When Screen Printing, what does the wastewater need to be disposed as?
What is Multimedia?

Activity 5

Access Wikipedia to answer the following questions in a Word document.

1. Write a definition of the word multimedia.
2. Finish the sentence: “Multimedia is a combination of ……..”
3. Multimedia can be divided into two separate categories. What are they and what does each mean & give an example of each.
4. What did multimedia mean in the 1970’s compared to the 1990’s?
5. What is the difference between the terms Video and Footage?
6. Create a table listing the different uses of multimedia on the left and examples of how it is used in these industries on the right. Industries to include are Creative Industries, Commercial, Entertainment and Fine Arts, Education, Engineering, Industry, Mathematical and Scientific Research, Medicine.

The Two Different Types of Multimedia

There are two forms of multimedia: Passive or Interactive (or otherwise known as linear and non-linear).

Passive (Linear) means that the user cannot choose the order of the media once the presentation has commenced. The presentation just flows (much like pages in a book).

Interactive (Non-Linear) media lets the user choose the path that they will take to view the media. This is what makes the presentation ‘interactive’. Suddenly your presentation is no longer like a book, but more like a web site.

Activity 6

1. Your task is to create a PowerPoint presentation on the file types commonly used in multimedia presentations. Your presentation should take the following form:
   Slide 1: Intro Slide (Introduction to Multimedia + your name)
   Slide 2: The Two Different Types of Multimedia (Use the information from this sheet)
   Slides 3 to 11: Multimedia File Types (have one slide on each of the following types: jpeg, gif, bmp, mp3, midi, avi, html, pdf, and mpg)

   Research the file types on the Internet and provide the following information for each one:
   - What does it stand for?
   - What sort of file is it? (eg. Sound, video, graphic)
   - What is it commonly used for?
   - What program/s can use/create the file?
   - How does it compare to other sound/video/graphic file types?
   - A sample of the file (eg a gif picture)
2. **Passive multimedia**: In groups of two, you are to create a Television Advertisement in Windows Movie Maker. Your advertisement is to go for 30 seconds only, and use still photos, text and sound. No video will be included in this part of the assignment. Your advertisement will be on an existing product of your choice. It could be on a new pair of shoes, a brand of makeup, a new CD, computer system etc. Access all pictures required from the Internet.

   **Step One**: Decide who you are going to work with and what product you are going to promote.

   **Step Two**: Fill out a Design Brief for your advertisement. A template to use is saved on shared.

   **Step Three**: Research the product, gather photos and modify required sound (using Audacity from last semester).

   **Step Four**: Create your advertisement in Windows Movie Maker.

3. **Interactive multimedia**: You are to make your PowerPoint presentation from Q1 interactive. This will involve you creating a menu-styled title page with a link to each file type on it. Then on each file type slide, a link back to the title page should be included. Read the document on Shared drive to help you do this.

**Colour Theory**

Before understanding colour models, it is essential to understand different systems. Many of us are aware of the colours as paints. Hence when we mix blue and yellow, we get the shade of green. But the result will be different if we mix green and red light. It will create yellow if 100% red and green light are mixed. So let us understand these two different properties. If we consider the colours produced by the monitor, the light beams generate it. It is based on the RGB model and it is additive colour model. Then comes to paint or printing inks. This is based on CMYK model, which is subtractive colour model.

**RGB**

With RGB, mixing of red and green equally gives yellow, mixing of green and blue creates cyan and the mixing of red and blue creates magenta. When all the three colours, red, green and blue are mixed equally they produces white light. Hence it is called Additive colour model. Another RGB model based example is human eye itself and scanners.

The basic advantage of RGB model is; it is useful for full colour editing because it has wide range of colours. But at the same time this model is said to device dependent. It means the way colours displayed on the screen depends on the hardware used to display it.

**CMYK**

Opposite model of RGB is CMY. Printing inks are based on this model. With the full presence of cyan, magenta and yellow we get black. But practically in the printing industry it is impossible to create black with these three colours. The result of the mixture of CMY is muddy brown due to the impurities of the printing inks. Hence black ink is added to get solid black. The outcome of this process CMYK model and k stand for black colour, which is also recognized as 'key' colour. Since black is a full presence of colour, you will have to subtract the levels of cyan, magenta and yellow to produce the lighter colours. This can be explained in different way. When light falls on the green surface or green ink. It absorbs (subtracts) all the colours from light except green. Hence the model is called subtractive
model. Print production is based on this model.

It is useful to have proper understanding of the colour models. The monitors as well as scanner works on RGB principle. While scanning we can adjust the software to produce desired result. CMYK is for print industry. It cannot produce the colour range of RGB hence after finishing the work on computer in RGB mode when you convert it into CMYK for printing some tonal changes can be occurred. In spite of its limitation CMYK model is considered as best model available for printing because it can produce properly finished output.

Answer the following questions in a Word document:

1. What colours make up the RGB Colour Model?
2. What colours make up the CMYK Colour Model?
3. Explain why RGB is described as an additive model.
4. Explain why CMYK is described as a subtractive model.
5. Which model is best for Screen work (ie Web sites), & why?
6. Which model is best for Print work (ie magazines), & why?

Multimedia Production Costs

Multimedia is not cheap. For linear multimedia, production costs can run $1,000 to $3,000 per finished minute. Since interactive multimedia requires more logic and variable scenarios of viewer response, production costs are usually priced hourly. Some vendors will contractually fix the number of hours that you will be paying for to complete the project.

These costs do not always include producing the distribution medium. Will it be over the Internet, on CD-ROM, videotape, floppy disk, or somewhere else? While production costs can be substantial, distribution costs that include packaging of the medium and actual fulfillment also can be significant.

Because of these costs and the control it can bring, the Internet will be the distribution medium of choice in the future.

Read the following article, How Small Businesses and Non-Profits Can Afford Multimedia for the Web at http://www.smallbusinessmultimedia.com/article.html and answer the questions below:

1. What are the three main stages of cost for multimedia production?
2. Which of these three stages costs the most?
3. What does the cost per minute of production depend on?
4. The most basic of revisions costs consist of three rounds – what are they?
5. What happens when a designer is provided with inconsistent or incomplete information?
6. List at least two ways to cut multimedia development costs.
Project Management

Producing effective Multimedia is a very challenging task which involves several people, several steps, a definite financial commitment, and normally a final product or deliverable. In other words, there are usually several steps and processes, which need to take place in order to successfully produce multimedia.

Multimedia Production involves a series of processes and it can be best described as a team effort. The Project Manager is the catalyst and coordinator of the project, managing all resources and overseeing the progress of the design and development team. Some of the key people in multimedia development are the following:

- A project manager
- Subject matter experts
- Contracted or in-house multimedia production expertise
- The instructional designer
- The writer (scripting and editing);
- Coordination of external resources such as on site location, content gathering, filming on site etc.
- Video and audio technicians
- Advertising, marketing, championing activities.

The Project Manager

The project manager is the person who coordinates the entire development of the multimedia project and is ultimately the person responsible for quality of the final product, allocation of funds, and the time management of the project. In order to be a successful project manager of these "multi-faceted" activities, a clear understanding of the team’s roles and responsibilities are essential. Additionally, a solid understanding of Project Management Techniques are also critical.
Key Activities of a Multimedia Project Manager

- Coordinates initial start up meetings between all parties;
- Schedules additional meeting throughout the project;
- Clarify, publish, and communicate timelines and milestones (establish deadlines);
- Breakdown the allocation of tasks and ensure all agencies are aware of their schedule and responsibilities;
- Monitor the allocation of tasks and the use of resources;
- Monitor progress;
- Manage the allocation of financial resources;
- Ensure quality control throughout the project and sign off the final deliverable;
- Evaluate the process and produce a project completion report; and
- Market the final product; ensure the product reaches the target audience.

Subject Matter Experts (SME’s):

These people are critical to the validity of the content of the Multimedia. They should be used to provide content expertise advice toward the development of the product. SME’s have a stake in the project because it will reflect their degree of expertise and knowledge. SME’s don’t always have to be the client, but certainly are involved in providing the technical expertise to the content.

It is critical that the project manager obtains a valid representative sample of SME’s to use on the project. The quality of the content will only be as good as the SME’s expertise.

The Project Manager must ensure that the SME’s are available, understand their role, and most importantly be left to provide Subject Matter Expertise only. A wise Project Manager will keep the SME’s involved at this level only, allowing them to focus on content, rather on the development of the Multimedia Product.

Contract or In-house Multimedia Production Expertise

- This is an interesting area of project management because it will often be a choice and balancing act between quality, costs, time, and resources. As alluded to earlier, the cost of developing multimedia is very expensive and can range from of $10,000 to $50,000 per hour of instruction. Labour from 50 to 100 hours per hour of instruction. All you really need to know is that producing multimedia is an expensive endeavor and you really need to be prudent with your decisions.
- In-House vs. Contracted Multimedia Development will ultimately be the Project Manager choice. If you are interested in building in-house expertise, then developing a project in-house may be the way to go. On the other hand, if you are looking for quality and cost balance, then contracting out will be an area to investigate.
- Point to consider: Most companies and corporations contract out the multimedia development. The advantage is you can select and evaluate a production company through the competitive bidding process, select the best company to do the job, contract, and then work close and hard with them through the life of the project to maximize the potential for an excellent final product.

The Instructional Designer

The instructional designer is a very critical key to success for effective multimedia development. All multimedia geared towards creating a dynamic, effective learning environment must have legitimate and sound instruction design and strategy built into the program. The instructional designer or design team can consist of people from either in-house, contract, or combination of both.
Activity 9

The Instructional Designer is Critical Because:

- Provides the advice on effective and efficient learning strategies
- Can work with the SME’s to breakdown the content and organize it into reasonable chunks
- Can design effective learning strategies and build them into the multimedia project
- Understand how to organize, manage, and deliver information to create an effective learning environment
- Develops introductions, main content body, review, application, an motivational segments of the multimedia project
- Understands the target audience and designs the level of learning appropriate to their needs
- Understands the key components of effective multimedia development and delivery and ensures this built into the project.
- Does research without agencies to acquire additional resources and references
- Gives a logical and structured format to the design decision throughout the development of the project
- Can evaluate the final "pilot" product and make necessary adjustments to fine-tune the effectiveness of the multimedia.

Answer the following questions in a Word document:

1. What is the job of the Project Manager?
2. What is the Project Manager responsible for?
3. What are the key activities of the Project Manager?
4. What are the Subject Matter Experts? How do they contribute to the development?
5. What is meant by the terms in-house or contract?
6. List at least four reasons why the Instructional Designer is critical.
Teaching Tools

COMPUTER AND LANGUAGE LITERACY SKILLS FOR SECONDARY SCHOOL STUDENTS

By Odette Rani

Defining Computer and Language Literacy
The Macquarie dictionary defines computer literacy as "the ability to use a computer with confidence and skill and to see ways in which computers can be used profitably to achieve a goal" (Willop et al., 2005). Computer literacy involves the understanding of how computers present information and their capacity to influence views of what the world is all about, and also the physical use of equipment (including peripherals and software applications).

Language literacy is also a broad term used to indicate not only the importance and minimum ability of individuals to read and write in a designated language, but also their ability to interpret the world as presented to them in its texts.

Related Studies
Some studies have claimed that the increasing use of computers in both educational and domestic environments has had negative consequences for the language literacy development of school-age children (Fuchs and Wöllmann, 2004). Sim results have been reported by Leino et al. (2010) from the PISA (Programme for International Student Assessment) 2000 data. They reported that,

"Active traditional reading with a strong engagement in fiction is associated with a high level of reading literacy proficiency. … In contrast, the lowest performance level was attained by the group of heavy digital readers, who typically almost never read traditional fiction or non-fiction. This suggests that if students tend to re-

This article is based on research designed to understand how 13 - 14-year-old students use computer spelling and grammar checkers and how their patterns of use relate to their English literacy.