

**CAMBRIAN COLLEGE**  
**of Applied Arts and Technology**  
**Sault Ste. Marie**

COURSE OUTLINE

FOREST MENSURATION

FOR 214 - 4



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TOPIC NO.	PERIODS	TOPIC INFORMATION
1	8	<p>PART I <u>PHOTOGRAMMETRY</u></p> <p>I. The history and application of photogrammetry and aerial photography.</p> <p>a) The history of:-</p> <ol style="list-style-type: none"><li>1. camera obscura</li><li>2. technique of image retention</li><li>3. positive image process</li><li>4. negative image</li><li>5. theory of photogrammetry</li><li>6. photogrammetry in North America</li><li>7. World War I and II</li></ol> <p>b) Application of aerial photographs.</p> <ol style="list-style-type: none"><li>1. Topographic and planimetric maps</li><li>2. Uses in forestry<ol style="list-style-type: none"><li>a) mapping</li><li>b) inventory</li><li>c) administration</li><li>d) geology</li><li>e) land use</li></ol></li></ol>
2	8	<p>II. Photographic techniques and specifications.</p> <p>a) The principle of the camera.</p> <ol style="list-style-type: none"><li>1. The eye</li><li>2. The camera<ol style="list-style-type: none"><li>a) lens</li><li>b) iris diaphragm</li><li>c) shutter</li><li>d) focal plane</li></ol></li><li>3. Aberration</li><li>4. Focal length</li><li>5. Aperture</li></ol> <p>b) Geometry of a Photograph</p> <ol style="list-style-type: none"><li>1. The actual aerial photograph - illustrating some features</li><li>2. The difference between a photograph and a map and what the differences mean.</li></ol> <p>c) Types of Aerial Photographs.</p> <ol style="list-style-type: none"><li>1. High obliques</li><li>2. Low obliques</li><li>3. Vertical</li></ol> <p>d) Scale</p> <ol style="list-style-type: none"><li>1. Definition</li><li>2. Illustration</li><li>3. Methods of denoting scale</li></ol>

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TOPIC NO.	PERIODS	TOPIC INFORMATION
		e) Photographic Film
		1. Composition
		a) cellulose acetate base
		b) emulsion
		c) anti-halation backing
		2. Film speed
		3. Negative films
		a) panchromatic
		b) infra-red
		4. Processing black and white negatives
		5. Colour
		a) colour negative
		b) colour positive
		6. Positive printing
		a) types of printing papers
		b) enlargements
		c) mosaics
		f) Taking Aerial Photographs
		1. Method of flying
		a) overlap
		- endlap
		- side lap
		2. Flying requirements
		a) flight attitudes
		- straight flight
		- drift
		- crab
		- tilt
		b) Information on the prints
		- fiducial marks
		- principal point
		- annotation
		c) Season of photography
		g) Obtaining and Handling Aerial Photographs
		h) Uses of Aerial Photographs in Forestry
		1. Mapping
		a) Base maps or Planimetric maps
		b) Forest stand maps
		c) Topographic maps
		d) Land use maps
		2. Forest inventory
		3. Forest administration

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TOPIC NO.	PERIODS	TOPIC INFORMATION
3	6	III. Stereoscropy <ol style="list-style-type: none"><li>a) Depth perception<ol style="list-style-type: none"><li>1. monocular vision</li><li>2. binocular vision</li><li>3. stereoscopic vision</li></ol></li><li>b) Types of Stereoscopes<ol style="list-style-type: none"><li>1. anaghyphs</li><li>2. polarization (vectographs)</li><li>3. lens or mirror stereoscopes</li><li>4. halography</li></ol></li><li>c) Orientation of photos for stereoscopic study.<ol style="list-style-type: none"><li>1. eye base</li><li>2. stereo base</li><li>3. conjugate principal points</li><li>4. orientation of stero pairs</li><li>5. stereoscopic study of aerial photos</li><li>6. stereograms</li><li>7. pseudoscopic effect</li></ol></li><li>d) Stereo Perception Tests<ol style="list-style-type: none"><li>1. Sims Test</li><li>2. hidden message test</li><li>3. floating circle stereogram test</li></ol></li></ol>
7	8	IV. Land Typing on Aerial Photographs <ol style="list-style-type: none"><li>a) Interpretation of non-forested land.</li><li>b) Interpretation of non-productive forest lands</li><li>c) Interpretation of productive forest lands<ol style="list-style-type: none"><li>- working group</li><li>- basal area</li><li>- protection forest</li><li>- age</li><li>- height</li><li>- stocking</li><li>- site-class</li></ol></li></ol>