

Applying Forensic Skills in Detecting Authenticity and Fraud in Educational Credentials

Region V NAFSA

October 28-30, Milwaukee, WI

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TYPES OF FRAUD

- Alteration: information on a legitimate academic document has been changed
- Fabrication: a completely fake academic document has been created
- Misleading translations: Translations can be interpretive rather than literal.
- Diploma Mills: Academic degrees that are bought and based on little or no coursework

Alteration

- authentic document (paper)
- authentic data, but may be
- someone else's or "corrected", e.g. better grade, higher score, different subject

Fabrication

- unauthorized reproduction of the official document
- usually poor quality print, wrong fonts, graphic features not exact, spelling mistakes etc.



COMMON RED FLAGS



SUSPICIOUS PERSONAL DATA

- applicant's age when document was earned
- unexplained gaps in educational history
- missing/incomplete credentials (My dog ate it!)

WEAK, WATERY SEALS



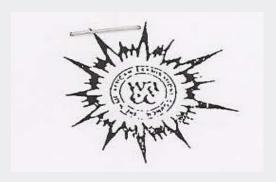






EMBLEM / LOGO QUALITY

Example I



Example III



Example II



Example IV





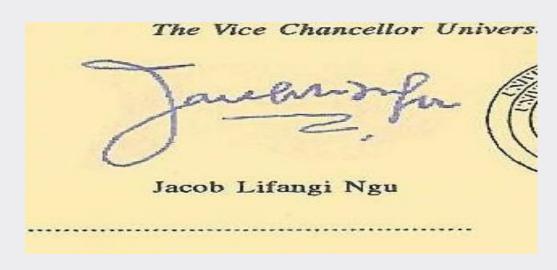


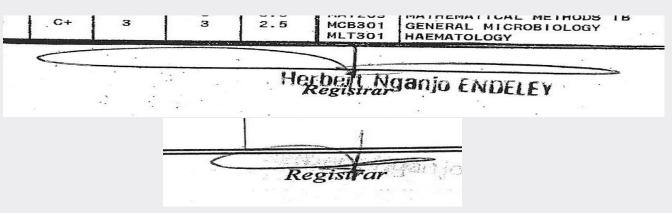


SIGNATURE QUALITY

scanned signatures vs hand signatures

forced signature, unnatural looping, wrong style or length







USE OF INK & COLOR

- official documents usually printed by professional press
- original document press uses single ink color
- fraudulent documents printed on commercial machines mix four basic colors to reach the desired hue (use a magnifier, look for pink and blue pixels)





ERASURES & SPELLING MISTAKES

ENGLISH LANGUAGE

LITERATURE IN ENGLISH

MATHMATICS

CHEMISTRY

BIOLOGI



DOCUMENT SIZE / PAPER **QUALITY**

- paper size
 - Letter vs A4
- dot matrix printer vs other printers, paper edges



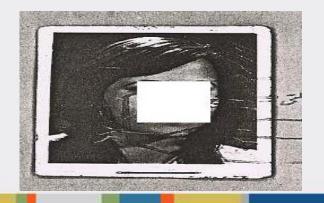




PERIOD OF STUDY / CULTURAL CONTEXT





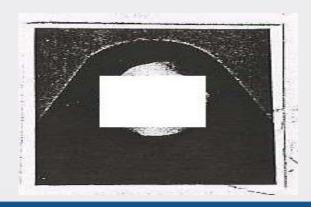














DOCUMENT FORMAT CHANGE





Document Printing Techniques

Overview of the Printing Process and Document Security Features



Basic Tools

- Magnifying glass
- Small flashlight
- Lighted microscop
- UV light









The Printing Process

- Prepress
- Press
- Afterpress





Prepress

Substrate – basic material for secured document (i.e. paper)

- commercial substrate
- optically dull substrate
- Watermarks
- Planchettes
- Chemical Security Features
- Fibers
- Security Thread/Strip























Fibers

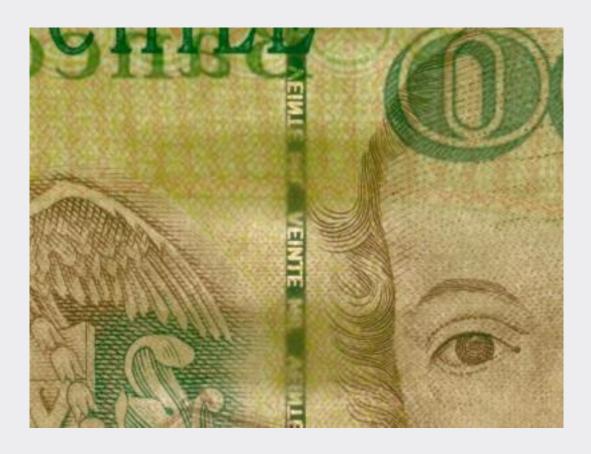














Color

- Process Colors
 - yellow
 - cyan
 - magenta
 - black
- Spot Colors
- chemically/optically reactive ink
 - UV/IR
 - OVI (Optical Variable Ink)
 - etc.

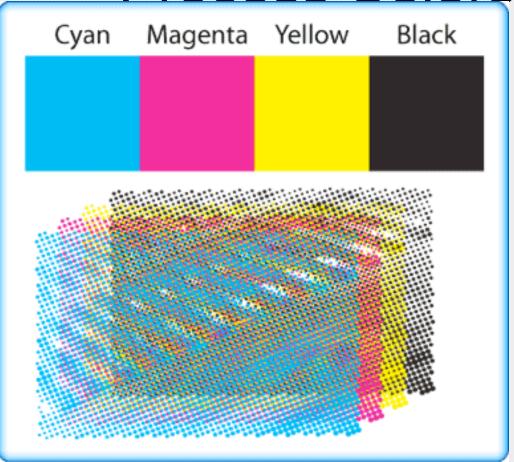


















Process colors under magnification











Spot Colors











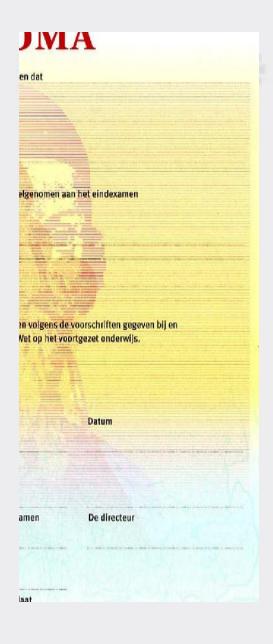






Press

- Rainbow printing
- Letterpress
- Intaglio
- Foil Printing
- Simultaneous Printing
- See-Through Register
- (Silk) Screen Printing
- Guilloche, Fine Line Structure
- Microprint
- Anticopy device



Rainbow Printing















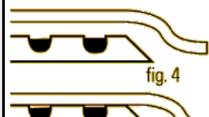


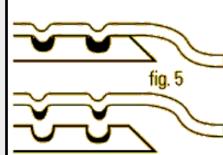












Intaglio











Foil Printing





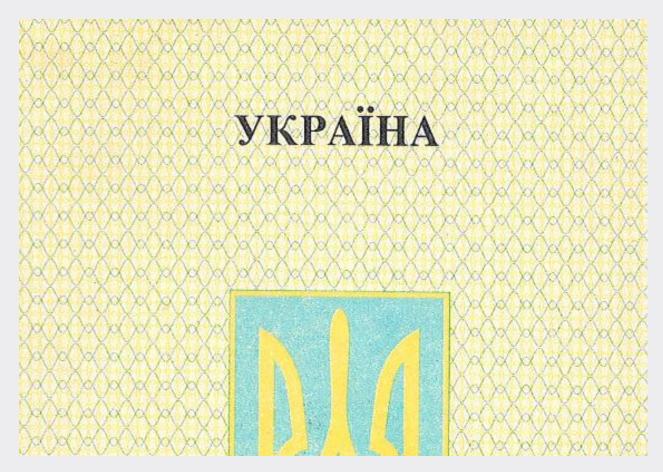








Fine Line Structure

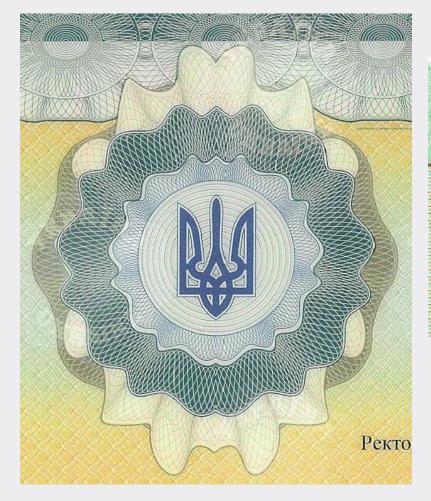




















Microprint / Microtext



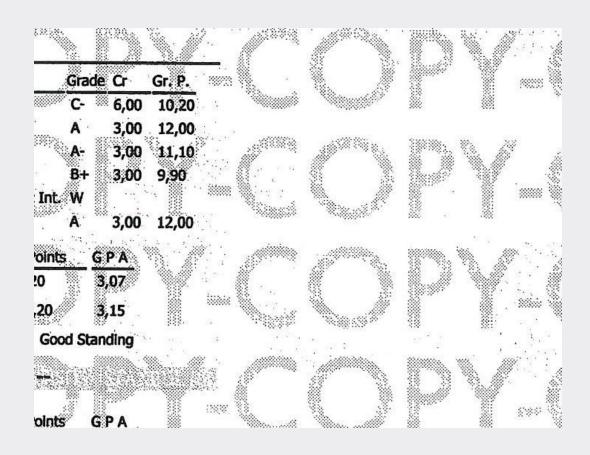








Anticopy device





Afterpress

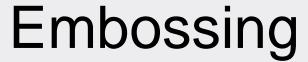
- Binding
- Embossing
- Hologram
- Optical Variable Device/Kinegram Data information
- Imageperf/Micro Perforation
- Laminating
- Numbering













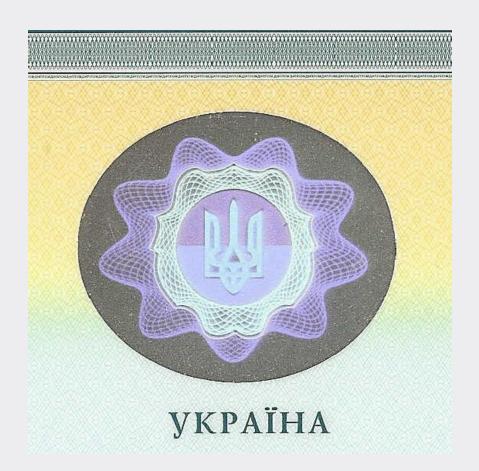
















Optical Variable Device / Kinegram











Perforations





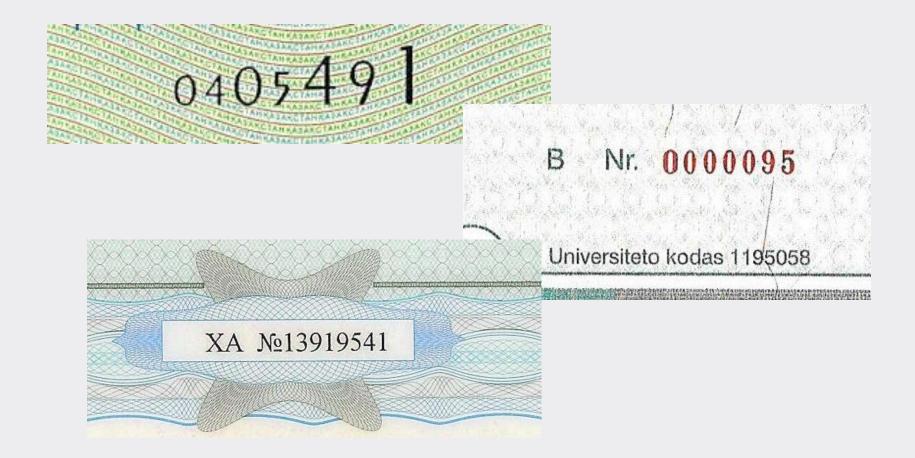








Numbering





AND MANY, MANY OTHER FEATURES ...



Other resources

- The Council of the EU Glossary of Security Documents
 - http://www.consilium.europa.eu/prado/EN/ glossaryPopup.html
- International Paper Knowledge Center
 - http://glossary.ippaper.com/default.asp?req =knowledge/article/243



Credential Analysis Solutions

- Focus on authentic documents, not falsifications!
- Document security features / printing details for further reference
- Continuous / Separate stationary
- Complications:
 - inside jobs, documents meet all specifications (focus on seals, signatures)











www.ece.org/presentations

CASE STUDIES