

SECURITY FEATURES IN EDUCATIONAL DOCUMENTS

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ABSTRACT: There are various security features in educational documents. Security features are given to avoid piracy of documents by common man. Each and every educational institute has different security features in their documents. Security features in various educational documents are discussed in this paper. Types of security feature and how to identify them is also discussed in this paper.

Keywords: educational documents, security feature, physical watermark, digital watermark

I. INTRODUCTION

Security features are embedded in almost each and every secret document to avoid their piracy by common man. Security features are used in passports, educational documents, currency notes, legal documents, plastic cards and many more. Common types of security features are watermark, micro-lettering, optically variable ink, see through registration mark, invisible fluorescent fibers etc. Some of the educational documents used in this study are shown in figure 1.



Figure 1 Educational Documents

Security features in various educational documents are explained below:

WATERMARK

It is basically of two types:

- Physical watermark
- Digital watermark

Physical watermark- It is a recognizable image or pattern in paper that appears as various shades of lightness or darkness when viewed under transmitted light or against a light source as shown in figure 2.

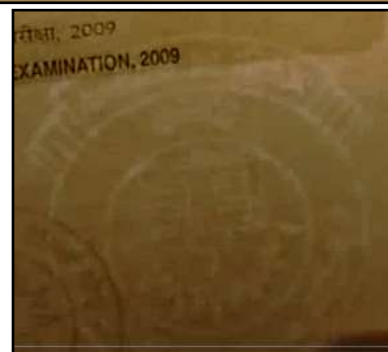
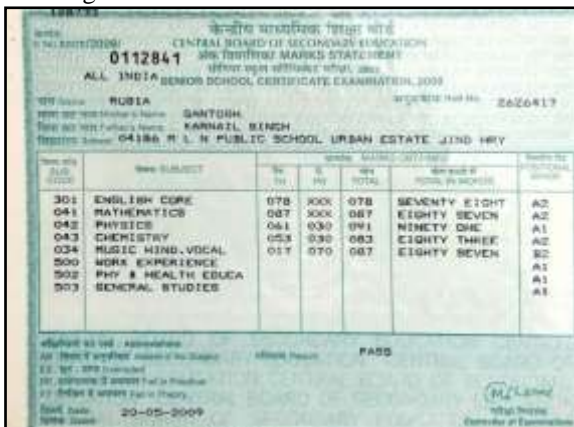


Figure 2 Physical Watermark

Digital watermark- it is produced by printing with transparent penetrating ink on the paper which penetrates into the fibers of paper and produce transparent image on the paper to avoid counterfeiting of documents. Such types of images are difficult to produce on colour copiers and scanners. Example of digital watermark is shown in figure 3.





Figure 3 Digital Watermark

II. BACKGROUND PRINTING

This feature gives protection against counterfeiting and manipulation of data. It consists of dual security colour background as shown in figure 4.



Figure 4 Dual colour background printing

GUILLOCHE

These are fine line patterns in ornamental or architectural form which looks like a design by naked eyes but when viewed under magnifying glass looks like fine line pattern like interlaced ribbon as shown in figure 5.



Figure 5 Guilloche under magnifying glass

CANDIDATE PHOTO

Photo of candidate is printed on the educational document to avoid piracy of document as shown in figure 6.



Figure 6 Photo

SERIAL NUMBER

These are the numerals printed mostly at the top of the document, these are given to track the documents easily as shown in figure 7.

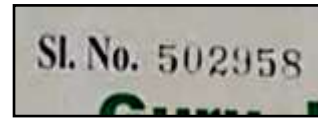


Figure 7 Serial number

MICRO PRINTING

It is a word or message so small to read by naked eyes and appears like a line or pattern as shown in figure 8.



Figure 8 Micro printing

HIGH RESOLUTION BORDER

It is a high resolution complicated design border, provides protection against piracy. It is visible under magnifying glass only.

INVISIBLE FLUORESCENT FIBERS

These are added in the paper during manufacturing process of paper. Documents having these fibers can be checked for authenticity under UV light source as shown in figure 9.



Figure 9 Fluorescent fibers

INVISIBLE PRINTING

An image or word is printed with invisible ink which is not visible by naked eyes unless the document is exposed to the UV light source to make it visible as shown in figure 10.



Figure 10 Invisible printing

III. CONCLUSION

Various security features given in educational documents are easy to identify as discussed above. Each document have security feature so as to avoid their piracy and duplicity by common man. More security features are required to discover to make the document impossible to counterfeit.

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