



Shipping & Mailing  
pbSecure™

# Curbing university degree and certificate forgery with cutting edge technology.



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## Introduction

Education is a crucial part of our lives and a good degree or diploma from a college can promise a bright career. This has resulted in a diploma or a degree from a good college becoming one of the most sought-after necessities today. However, it has given rise to an alarming trend. That of falsifying or forging these credentials. Individuals or institutes offering forged certification, popularly known as degree or diploma mills, are becoming a menace today. A billion-dollar industry, it not only hampers the reputation of educational institutes but also results in varied organisations where these are submitted, expending huge amounts and efforts in verifying these credentials.



This issue is not new. However, an effective measure is yet to be taken to curb university degree and certificate forgery at the point of origin. This whitepaper attempts to sensitise the educational institutes, organisations and individuals to the problem of forged degrees. It delves into the challenges faced by the different stakeholders involved. Furthermore, it touches upon the concept of digital encryption and how it can help curb forgery at the point of origin.

By incorporating the secure encryption format, document tampering can be easily detected and the process of document verification can be made faster and easier.

### The state of play:

Around **4 million students** graduate from higher education institutes every year in Europe. In United States, **4 million college students** graduate each year. In Asia, China alone records 60 million graduates and India **25 million graduates yearly**. According to LinkedIn, 500 million people registered with them in 2017 with a large majority of them recording multiple diplomas on their profiles<sup>1</sup>.

1. Darrow, Barb; LinkedIn Claims Half a Billion Users; Source: Fortune.com (<http://fortune.com/2017/04/24/linkedin-users>); April, 24, 2017.

2. 2016 NAFSA Annual Conference ([http://www.acei-global.org/wp-content/uploads/2016/06NAFSA-2016-Diploma-Mills-and-Fake-Degrees\\_A-Global-Problem-and-Threat-Final.pdf](http://www.acei-global.org/wp-content/uploads/2016/06NAFSA-2016-Diploma-Mills-and-Fake-Degrees_A-Global-Problem-and-Threat-Final.pdf)).

## Fake degrees — a widespread menace.

A degree is a valuable commodity and the idea of falsifying it can be lucrative for some people. There are three levels of faking a degree: put it on a CV, bluff it and finally obtain a fake certificate to verify the claims. A fake certificate can either be bought from a fake university or it can be forged to represent a real university. According to a report from ACEI Global, fake diploma is a billion-dollar industry today. Popularly known as diploma mills, these operate across the globe with US being the world leader, housing more than 1,008 diploma mills.

### A quick glance at the global diploma mill market.<sup>2</sup>

Country	Findings
USA	Ranks no 1 in housing diploma mills
UK	Ranks no 1 in Europe as the hub for diploma mills
Pakistan	Hub for the biggest counterfeiting ring run by Axact
Liberia	Ministry of Education and government officials in cahoots with St Regis University
Canada	A ring of counterfeiters creating fake diplomas was uncovered recently.
Australia	A number of medical professionals have been found to have fake medical degrees
Singapore	Reported a recent jump in phony diplomas
Kenya	Many people serving in the government and the military have fake degrees

### Challenges faced by educational institutes and organisations.

Today, the domestic and global job market is quite competitive, which is making it lucrative for people to opt for diploma mills. The fact that some of the government and private jobs require college degrees for higher positions drives some people to get fake diplomas and degrees. Though universities take specific steps to secure their degrees including using security threads, special inks and holograms; the entire security goes for a toss once the original certificate is photocopied.

The biggest victims of these diploma mills are educational institutes that must defend their integrity. Organisations spend cost and efforts to verify the credentials of prospective hires. Fake credentials results in reputational damage for universities since an employer who has hired a graduate with unverified credentials might not wish to engage with that university again in the future.

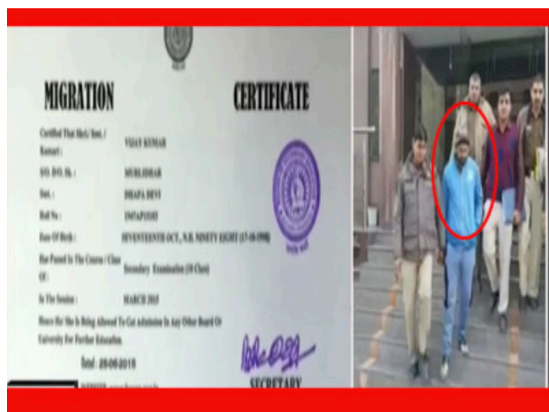
### Fake degree menace in the news.

## Fake degrees—a widespread menace (cont'd).

THE TIMES OF INDIA

### Gang of forgers sold 50,000 school and univ degrees, set up fake websites

TNN | Jan 30, 2018, 03:03 AM IST



Gang of forgers sold 50,000 school and univ degrees, set up fake websites

Police said several thousand people had got jobs in the government and private sectors on the basis of the forged certificates. The three arrested accused were identified as Pankaj Arora, 35, Pawiter Singh, 40, and Gopal Krishan, 40.

NEW DELHI: Police have busted a pan-India fake degree racket operating through a city “education society”, with regional offices and over 40 agents in other parts of the country, which had allegedly sold more than 50,000 forged marksheets and certificates of universities and school boards.

The racket was busted after police arrested three people on a complaint. It found that the gang even advertised its services besides running fake websites of over 30 education boards. Links to these websites, which appeared just like the real ones, were given to clients for verifying the ‘authenticity’ of their documents.

DCP (west) Vijay Kumar said police stumbled upon the racket after when a man approached the Hari Nagar cops with a complaint of having received a fake Class 10 certificate and related documents.

THE TIMES OF INDIA

### Maharashtra can't protect beneficiaries of fraud: Officials

TNN | Feb 4, 2018, 04:34 AM IST



MUMBAI: Recruited as clerks, many of the state employees who face the sack for using fake caste certificates have now risen to the position of deputy secretary. The fears that they might lose their positions have already led politicians and unions to take up cudgels for them.

In July 2017, the Supreme Court had ruled that anyone found guilty of using a forged caste certificate to get admission into educational institutes or for a job will lose their degree and job. In addition, the apex court had directed punitive action against them irrespective of their tenure of service. While the order is unequivocal, the state government, wary of being held responsible for the sack of a huge chunk of its employees, has been treading cautiously on the matter. It has sought opinion from the law

and judiciary department and the advocate general (AG). The consultations have, however, failed to provide succour with the AG as well as the law and judiciary department unanimously holding that the SC order was unambiguous about dismissal being the punishment for beneficiaries of the fraud.

## Document encryption as a solution.

Various solutions in the market offer university degree verification but they are far from perfect. Document encryption on the other hand provides heightened security. By converting and securing the raw data into an encrypted format, which can then be embedded into the issued degree as a bar code, the threat of tampering can be eliminated. It is a proven technology and is fail-safe even when photocopied. The encrypted information can be easily verified with the online repository.

### Benefits of document encryption

Document encryption provide various benefits:

- Official, portable, and verifiable electronic version of a document.
- Employers can use electronic identifier to verify the authenticity of a document.
- Universities can provide certificate validation services from their website.
- Trusted and widely acceptable since document is digitally signed and encrypted.

Secure Evidencing Solutions provide tamper-proof evidence that a transaction took place. Typically, there is an 'issuer' —an entity that initiates the transaction and a 'verifier'—someone who can independently verify that the transaction occurred.

### How pbSecure helps curb forgery

Pitney Bowes (PB) is the only mailstream solutions provider with a direct presence in India. As the leading provider for pre- and post-print solutions and equipment, PB has developed pbSecure to provide high-security encryption that leverages industry leading cryptography technology. Issuers can produce credentials that are verifiable in real-time using a public key certificate.

pbSecure offers three layers of protection—it encrypts vital information at the point of origin, verifies decrypted information, and provides proof of authenticity. Any organisation wanting to check genuineness of a certificate can leverage pbSecure in three ways:

- **Tamper detection:** Determine whether asset has been tampered with.
- **Fake prevention:** Determine whether the presented asset is genuine or fake.
- **Copy protection:** Determine whether the asset is 'original' or a 'forged copy.'

### How pbSecure works

#### How are certificates issued?

Cryptographic technology imprints a secure 2D barcode on the document at the time of issuance, which makes it tamper-proof. pbSecure provides a special hardware box for this and the user only needs a desktop computer and a regular printer (to print the secured documents).

#### How does the verification work?

Verification can be done offline, online or through smartphones.

- Offline verification:** Accomplished with off-the-shelf scanners. Software provided by pbSecure integrates into existing IT systems of the verifier.
- Online verification:** Verification through a web-interface without creating a centralised database to ensure data privacy.
- Smartphone verification:** Accomplished with pbSecure verifier app.

Employees or alumni can present the 2D barcode imprinted document to the employer. The employer can either use a scanner or an online verification solution to check the document authenticity.

For scanner verification, the employer needs a computer, pbSecure provided-software, and a cryptographic box.

For online verification, the employer enters a sequence number that appears with the 2D barcode into a website to verify the document.



## How does pbSecure meet the expectations of educational institutes?

### Easy to Implement

pbSecure™ ensures certification issuance without high IT infrastructure or administrative costs, which helps:

- Avoid complex document management involving storage, hash, and digital document management.
- Eliminate digital safes.

### Highly secure solution that discourages forgery

Online solutions rely on sophisticated strategies to secure the storage of data. However, these solutions are susceptible to hacking. pbSecure provides a hybrid solution, which is hacker-safe since any data tampering is detectable. All records that may have been hacked will fail verification. Since scanning can be done through multiple channels — online, offline or through a smartphone app, traditional forgery methods are discouraged.

### How pbSecure functions

pbSecure helps educational institutes secure data through three easy steps:

#### 01. Prepare data

- Convert data to standardised format using software provided by PB or any other tool.
- Check data for correctness.

#### 02. Process data

- Generate a secure barcode using the software
- Send data to central server for online verification (optional).

#### 03. Print secure document

- Use the current printing process to print secure document.



## Benefits and conclusion

### Benefits of pbSecure™

Institution	Benefits
For universities	<ul style="list-style-type: none"> <li>• Secure certificates and mark sheets using cutting-edge technology</li> <li>• Online and offline verification process to discourage forgery</li> <li>• Reissue of certificate in different languages, and verification can be monetised where needed</li> </ul>
For organisations	<ul style="list-style-type: none"> <li>• Access to genuine talent pool</li> <li>• Instant online or offline verification that reduces verification time</li> </ul>
For students and alumni	<ul style="list-style-type: none"> <li>• Faster access to university-related information through a central repository</li> <li>• Access to online verification and multilingual certificates</li> <li>• Access to online job sites and other recruitment sources</li> <li>• Able to submit copies of original degree for verification</li> <li>• Flexibility to carry certificate and mark sheets in multiple formats—paper, smart card/pen drives etc.</li> </ul>

### Conclusion

With the proliferation of diploma and degree mills, organisations are increasingly looking for educational institutes with a genuine talent pool. Institutes are facing reputational challenges owing to verification issues due to no fault of theirs. While the methods of forgery continue to evolve, the importance of curbing this menace cannot be undermined.

To tackle diploma and degree mills, universities need to take document encryption to the next level through secure evidencing. A hybrid solution available offline and online reduces the likelihood of forgery. pbSecure™ builds on the existing IT infrastructure of educational institutes.

Hence, cost concerns should not dissuade organisations from investing in securing their certifications and making sure that organisations and students have the right point of reference to verify the authenticity of the credentials.

Only universities and educational institutions that invest in delivering secure certification will reap the business benefits through improved reputation and better relationships with organisations and alumni. This includes securing certificates at the point of origin through 2D barcodes. This technology has been successfully implemented at various educational institutes and the idea of addressing potential threats early on makes sense for students, alumni and organisations. Thus, having the right structure in place to issue certificates without spending manual cost in securing them will translate into operational savings.

Document encryption is an effective tool to curb document forgery. The first step for educational institutes is to determine their existing security measures and ascertain if it is enough to secure their certificates. From there on, decisions on investing in the right technology can be taken to drive operational benefits.

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