

## **Merkle Damgard Transformation**

**Input:** A message  $x$  of arbitrary length and an initialization vector of length  $n$ .

**Output:** Returns the hash of input message.

**Algorithm:**

- Append length of the message to the input message.

- Divide the message into blocks of size  $n$ .

- For each message block:

  - Apply the fixed length hash function to the message the block and the initialization vector

  - Update the vector with the result

- Return the output the last fixed length hash function.