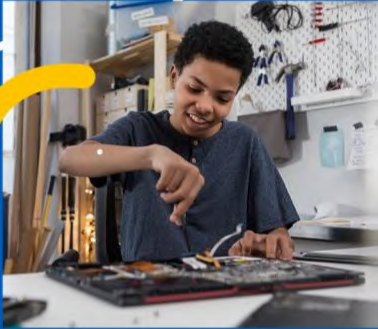


# NEXT ENGINEERS

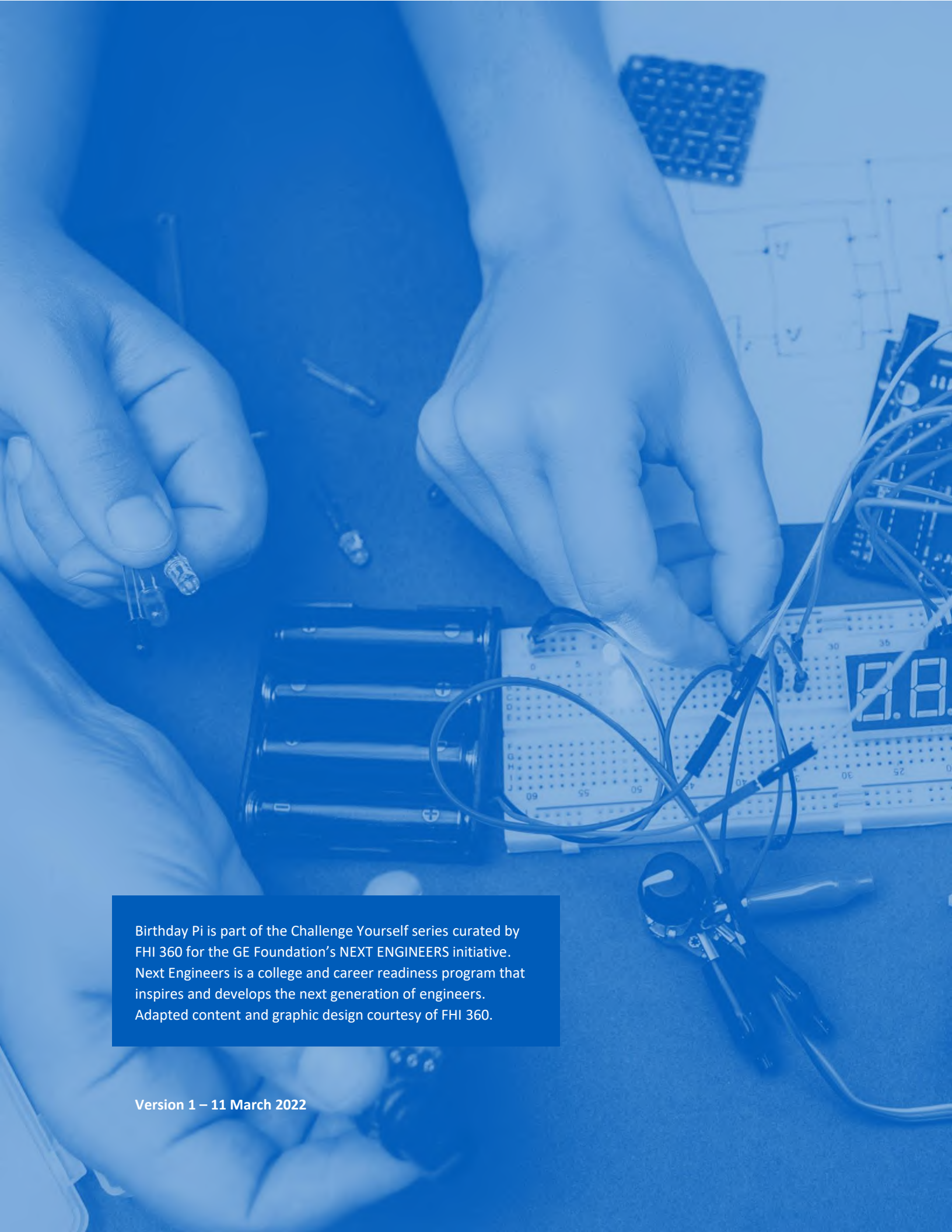


CHALLENGE YOURSELF

Pi Day: Birthday Pi  
All Engineering



GE Foundation



BirthDay Pi is part of the Challenge Yourself series curated by FHI 360 for the GE Foundation's NEXT ENGINEERS initiative. Next Engineers is a college and career readiness program that inspires and develops the next generation of engineers. Adapted content and graphic design courtesy of FHI 360.

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## Birthday Pi

### NERD OUT

#### Find your birthday in $\pi$ ?

Because  $\pi$  has infinitely many digits, any string of numbers you could ever think of, no matter how long or how random, will be a string of numbers somewhere in  $\pi$ . This is what infinity means.

But unfortunately, we do not know all the digits of  $\pi$ . We never will. But we know enough of the digits to be fairly sure that every possible birthday is a series of numbers somewhere inside the first one million digits of  $\pi$ .

For example, my birthday is the 20<sup>th</sup> November 1975. The string 112075 is at position 28,552. This makes me 28,552 years old in ' $\pi$  years'!

## My Birthday In Pi

My Birthday 11/20/75 is at position 28,552 in Pi ( $\pi$ )

$\pi = 3.141... 5876 [11\cdot20\cdot75] 82906...$

PiDay.org  
#PiDay #MyPiDay



Visit *Find Your Birthday in Pi* (<https://www.piday.org/find-birthday-in-pi/>) and search for your birthday and your friends' birthdays in the first one million digits of  $\pi$ . Who is the oldest in ' $\pi$  years'? Who is the youngest? Does anyone have a birthday not in the first one million digits of  $\pi$ ?

You can also use the following websites to do the same thing especially if you are not familiar with the mm-dd-yy date format.

- *Find Your Pi Day* (any date format)  
<https://mypiday.com>
- *Find Your Pi Day* (dd-mm-yy)  
<https://www.easycalculation.com/date-day/my-pi-day.php>



#### WHAT IS PI?

Pi (represented by the symbol  $\pi$ ) is the ratio of the length of a circle's circumference to its diameter and has a value of approximately 3.14.



$$\pi = \frac{\text{Circumference}}{\text{Diameter}} \approx 3.14$$

## Find other numbers in $\pi$

Mathematicians and math enthusiasts have spent many hours looking through the digits of  $\pi$  and have discovered all sorts of interesting patterns and hidden number gems. The video called *A mile of Pi* (6:27) (<https://www.youtube.com/watch?v=0r3cEKZiLmg>) is a wonderful exploration of some of the patterns that have been discovered with the first 1 million digits of this surprising and enigmatic number.

Spend some time doing your own investigations to see what interesting or meaningful strings of numbers you can find inside the digits of  $\pi$ . The website *Atractor* (<https://www.atractor.pt/mat/fromPI/PIsearch-en.html>) provides some wonderful tools for doing this including finding your name inside  $\pi$ . Here are some ideas.

- Can you find the first few digits of  $\pi$  repeated elsewhere?
- How many repeats of the same digit can you find?
- Can you find the string 0, 1, 2, 3, 4, 5, 6, 7, 8, 9? How about 9, 8, 7, 6, 5, 4, 3, 2, 1, 0?
- Can you find previous winning lottery numbers?

You can also visit <http://www.subidiom.com/pi/piday.asp> for another pi searching tool.

