

ΥΔΡΟΛΟΓΙΑ
7^ο ΕΞΑΜΗΝΟ

ΤΜΗΜΑ ΔΙΑΧΕΙΡΙΣΗ ΠΕΡΙΒΑΛΛΟΝΤΟΣ ΚΑΙ ΦΥΣΙΚΩΝ ΠΟΡΩΝ

7^η ΕΡΓΑΣΤΗΡΙΑΚΗ ΑΣΚΗΣΗ:
Μέθοδος Puls

Όνοματεπώνυμο:

ΑΜ:

Ένα φράγμα είναι τοποθετημένο σε σειρά με έναν χείμαρρο. Ο όγκος του νερού πίσω από το φράγμα μεταβάλλεται γραμμικά με το βάθος του νερού σύμφωνα με τον τύπο $S=10355H$, όπου H είναι η στάθμη του νερού σε m. Ο Πίνακας 2 παρουσιάζει την εκροή από το φράγμα σε συνάρτηση με το βάθος του νερού στο φράγμα. Στον Πίνακα 1 δίνεται το υδρογράφημα εισροής, υπολογίστε το υδρογράφημα εκροής, το μέγιστο βάθος του νερού και την μέγιστη χωρητικότητα της δεξαμενής.

Πίνακας 1.

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|-------|----------------------|------------------------------------|----------------------|--------------------------------------|----------------------|------|-------------------|
| t, hr | I, m ³ /s | I _μ , m ³ /s | O, m ³ /s | I _μ -O, m ³ /s | G, m ³ /s | H, m | S, m ³ |
| 0,0 | 0 | | | | | | |
| 0,5 | 1,00 | | | | | | |
| 1,0 | 2,80 | | | | | | |
| 1,5 | 5,60 | | | | | | |
| 2,0 | 8,30 | | | | | | |
| 2,5 | 10,30 | | | | | | |
| 3,0 | 10,10 | | | | | | |
| 3,5 | 8,60 | | | | | | |
| 4,0 | 5,20 | | | | | | |
| 4,5 | 3,00 | | | | | | |
| 5,0 | 1,70 | | | | | | |
| 5,5 | 0,80 | | | | | | |
| 6,0 | 0,40 | | | | | | |
| 6,5 | 0,20 | | | | | | |
| 7,0 | 0,00 | | | | | | |
| 7,5 | 0,00 | | | | | | |
| 8,0 | 0,00 | | | | | | |
| 8,5 | 0,00 | | | | | | |
| 9,0 | 0,00 | | | | | | |
| 9,5 | 0,00 | | | | | | |
| 10,0 | 0,00 | | | | | | |
| 10,5 | 0,00 | | | | | | |
| 11,0 | 0,00 | | | | | | |
| 11,5 | 0,00 | | | | | | |
| 12,0 | 0,00 | | | | | | |
| 12,5 | 0,00 | | | | | | |
| 13,0 | 0,00 | | | | | | |
| 13,5 | 0,00 | | | | | | |
| 14,0 | 0,00 | | | | | | |
| 14,5 | 0,00 | | | | | | |
| 15,0 | 0,00 | | | | | | |

Πίνακας 2

| G, m ³ /s | H, m | S, m ³ | O, m ³ /s | G, m ³ /s | H, m | S, m ³ | O, m ³ /s | G, m ³ /s | H, m | S, m ³ | O, m ³ /s |
|----------------------|-------|-------------------|----------------------|----------------------|-------|-------------------|----------------------|----------------------|-------|-------------------|----------------------|
| 0,000 | 0,000 | 0 | 0,000 | 16,812 | 2,900 | 30030 | 0,257 | 34,186 | 5,800 | 60059 | 1,641 |
| 0,297 | 0,050 | 518 | 0,019 | 17,101 | 2,950 | 30547 | 0,260 | 34,481 | 5,850 | 60577 | 1,654 |
| 0,588 | 0,100 | 1036 | 0,026 | 17,390 | 3,000 | 31065 | 0,263 | 34,775 | 5,900 | 61095 | 1,666 |
| 0,879 | 0,150 | 1553 | 0,032 | 17,763 | 3,050 | 31583 | 0,433 | 35,069 | 5,950 | 61612 | 1,679 |
| 1,169 | 0,200 | 2071 | 0,037 | 18,086 | 3,100 | 32101 | 0,505 | 35,363 | 6,000 | 62130 | 1,692 |
| 1,459 | 0,250 | 2589 | 0,042 | 18,402 | 3,150 | 32618 | 0,561 | 35,839 | 6,050 | 62648 | 2,069 |
| 1,749 | 0,300 | 3107 | 0,046 | 18,713 | 3,200 | 33136 | 0,609 | 36,238 | 6,100 | 63166 | 2,293 |
| 2,038 | 0,350 | 3624 | 0,049 | 19,022 | 3,250 | 33654 | 0,651 | 36,620 | 6,150 | 63683 | 2,482 |
| 2,328 | 0,400 | 4142 | 0,053 | 19,329 | 3,300 | 34172 | 0,690 | 36,993 | 6,200 | 64201 | 2,651 |
| 2,617 | 0,450 | 4660 | 0,056 | 19,634 | 3,350 | 34689 | 0,725 | 37,359 | 6,250 | 64719 | 2,808 |
| 2,906 | 0,500 | 5178 | 0,059 | 19,939 | 3,400 | 35207 | 0,758 | 37,720 | 6,300 | 65237 | 2,955 |
| 3,195 | 0,550 | 5695 | 0,062 | 20,242 | 3,450 | 35725 | 0,789 | 38,077 | 6,350 | 65754 | 3,094 |
| 3,484 | 0,600 | 6213 | 0,065 | 20,544 | 3,500 | 36243 | 0,819 | 38,431 | 6,400 | 66272 | 3,227 |
| 3,773 | 0,650 | 6731 | 0,067 | 20,846 | 3,550 | 36760 | 0,847 | 38,783 | 6,450 | 66790 | 3,355 |
| 4,062 | 0,700 | 7249 | 0,070 | 21,147 | 3,600 | 37278 | 0,875 | 39,132 | 6,500 | 67308 | 3,479 |
| 4,351 | 0,750 | 7766 | 0,072 | 21,448 | 3,650 | 37796 | 0,901 | 39,480 | 6,550 | 67825 | 3,599 |
| 4,640 | 0,800 | 8284 | 0,075 | 21,748 | 3,700 | 38314 | 0,926 | 39,826 | 6,600 | 68343 | 3,715 |
| 4,928 | 0,850 | 8802 | 0,077 | 22,048 | 3,750 | 38831 | 0,950 | 40,170 | 6,650 | 68861 | 3,828 |
| 5,217 | 0,900 | 9320 | 0,079 | 22,348 | 3,800 | 39349 | 0,974 | 40,513 | 6,700 | 69379 | 3,939 |
| 5,506 | 0,950 | 9837 | 0,081 | 22,647 | 3,850 | 39867 | 0,997 | 40,855 | 6,750 | 69896 | 4,047 |
| 5,795 | 1,000 | 10355 | 0,083 | 22,946 | 3,900 | 40385 | 1,019 | 41,196 | 6,800 | 70414 | 4,153 |
| 6,093 | 1,050 | 10873 | 0,104 | 23,244 | 3,950 | 40902 | 1,041 | 41,535 | 6,850 | 70932 | 4,257 |
| 6,385 | 1,100 | 11391 | 0,114 | 23,542 | 4,000 | 41420 | 1,062 | 41,874 | 6,900 | 71450 | 4,359 |
| 6,677 | 1,150 | 11908 | 0,122 | 23,840 | 4,050 | 41938 | 1,083 | 42,212 | 6,950 | 71967 | 4,460 |
| 6,968 | 1,200 | 12426 | 0,129 | 24,138 | 4,100 | 42456 | 1,104 | 42,549 | 7,000 | 72485 | 4,558 |
| 7,258 | 1,250 | 12944 | 0,135 | 24,436 | 4,150 | 42973 | 1,124 | 42,885 | 7,050 | 73003 | 4,656 |
| 7,549 | 1,300 | 13462 | 0,141 | 24,733 | 4,200 | 43491 | 1,143 | 43,220 | 7,100 | 73521 | 4,751 |
| 7,839 | 1,350 | 13979 | 0,146 | 25,030 | 4,250 | 44009 | 1,162 | 43,555 | 7,150 | 74038 | 4,845 |
| 8,130 | 1,400 | 14497 | 0,152 | 25,327 | 4,300 | 44527 | 1,181 | 43,889 | 7,200 | 74556 | 4,938 |
| 8,420 | 1,450 | 15015 | 0,156 | 25,624 | 4,350 | 45044 | 1,199 | 44,223 | 7,250 | 75074 | 5,030 |
| 8,710 | 1,500 | 15533 | 0,161 | 25,921 | 4,400 | 45562 | 1,218 | 44,556 | 7,300 | 75592 | 5,121 |
| 9,000 | 1,550 | 16050 | 0,166 | 26,218 | 4,450 | 46080 | 1,235 | 44,888 | 7,350 | 76109 | 5,210 |
| 9,290 | 1,600 | 16568 | 0,170 | 26,514 | 4,500 | 46598 | 1,253 | 45,220 | 7,400 | 76627 | 5,299 |
| 9,579 | 1,650 | 17086 | 0,174 | 26,810 | 4,550 | 47115 | 1,270 | 45,551 | 7,450 | 77145 | 5,386 |
| 9,869 | 1,700 | 17604 | 0,179 | 27,106 | 4,600 | 47633 | 1,287 | 45,882 | 7,500 | 77663 | 5,473 |
| 10,159 | 1,750 | 18121 | 0,183 | 27,402 | 4,650 | 48151 | 1,304 | | | | |
| 10,448 | 1,800 | 18639 | 0,187 | 27,698 | 4,700 | 48669 | 1,321 | | | | |
| 10,738 | 1,850 | 19157 | 0,190 | 27,994 | 4,750 | 49186 | 1,337 | | | | |
| 11,027 | 1,900 | 19675 | 0,194 | 28,290 | 4,800 | 49704 | 1,353 | | | | |
| 11,317 | 1,950 | 20192 | 0,198 | 28,586 | 4,850 | 50222 | 1,369 | | | | |
| 11,606 | 2,000 | 20710 | 0,201 | 28,881 | 4,900 | 50740 | 1,385 | | | | |
| 11,896 | 2,050 | 21228 | 0,205 | 29,176 | 4,950 | 51257 | 1,400 | | | | |
| 12,185 | 2,100 | 21746 | 0,208 | 29,472 | 5,000 | 51775 | 1,416 | | | | |
| 12,474 | 2,150 | 22263 | 0,212 | 29,767 | 5,050 | 52293 | 1,431 | | | | |
| 12,764 | 2,200 | 22781 | 0,215 | 30,062 | 5,100 | 52811 | 1,446 | | | | |
| 13,053 | 2,250 | 23299 | 0,218 | 30,357 | 5,150 | 53328 | 1,461 | | | | |
| 13,342 | 2,300 | 23817 | 0,222 | 30,652 | 5,200 | 53846 | 1,475 | | | | |
| 13,631 | 2,350 | 24334 | 0,225 | 30,947 | 5,250 | 54364 | 1,490 | | | | |
| 13,921 | 2,400 | 24852 | 0,228 | 31,242 | 5,300 | 54882 | 1,504 | | | | |
| 14,210 | 2,450 | 25370 | 0,231 | 31,537 | 5,350 | 55399 | 1,518 | | | | |
| 14,499 | 2,500 | 25888 | 0,234 | 31,831 | 5,400 | 55917 | 1,533 | | | | |
| 14,788 | 2,550 | 26405 | 0,237 | 32,126 | 5,450 | 56435 | 1,546 | | | | |
| 15,077 | 2,600 | 26923 | 0,240 | 32,420 | 5,500 | 56953 | 1,560 | | | | |
| 15,366 | 2,650 | 27441 | 0,243 | 32,715 | 5,550 | 57470 | 1,574 | | | | |
| 15,655 | 2,700 | 27959 | 0,246 | 33,009 | 5,600 | 57988 | 1,588 | | | | |
| 15,945 | 2,750 | 28476 | 0,249 | 33,304 | 5,650 | 58506 | 1,601 | | | | |
| 16,234 | 2,800 | 28994 | 0,252 | 33,598 | 5,700 | 59024 | 1,614 | | | | |
| 16,523 | 2,850 | 29512 | 0,254 | 33,892 | 5,750 | 59541 | 1,627 | | | | |

