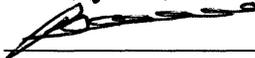


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ДОПУЩЕН К ЗАЩИТЕ

Заведующий кафедрой СИ

  
В. Е. Васюк

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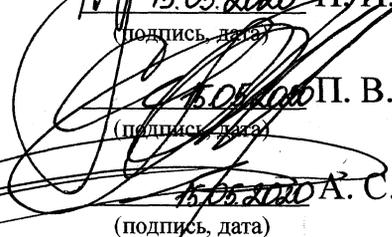
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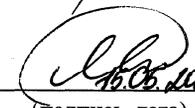
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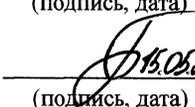
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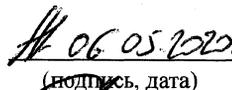
  
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(подпись, дата)

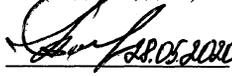
  
15.05.2020 П. В. Сергиевич  
(подпись, дата)

  
15.05.2020 А. С. Саламонов  
(подпись, дата)

  
15.05.2020 М. М. Салтанов  
(подпись, дата)

  
15.05.2020 Е. С. Третьякова  
(подпись, дата)

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15.05.2020 Г. Л. Автушко  
(подпись, дата)

  
15.05.2020 Н. А. Парамонова  
(подпись, дата) к.б.н., доцент

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1. : 14  
2007 3: . 26 26 2016 . [ ] - : [http://president.gov.by/ru/official\\_documents\\_ru/view/direktiva-3-ot-14-ijunja-2007-g-1399/](http://president.gov.by/ru/official_documents_ru/view/direktiva-3-ot-14-ijunja-2007-g-1399/). - : 22.02.2020.
2. [ ] - : [http://www.energsovet.ru/bul\\_stat.php?idd=380](http://www.energsovet.ru/bul_stat.php?idd=380). - : 22.02.2020.
3. [ ] - : <http://www.government.by/ru/solutions/2353>. - : 23.02.2020.
4. [ ] - : <https://belayarus.by/news/polezno-znat/stolichnyy-olimpiyskiy-tsentr-po-fristaylu-prazdnik-dlya-vsey-semi/>. - : 23.02.2020.
5. [ ] - : [http://www.mst.by/ru/rc\\_vodnye\\_lyzhi-ru/](http://www.mst.by/ru/rc_vodnye_lyzhi-ru/). - : 23.02.2020.
6. [ ] - : <http://www.belprom.by/author/tmg/>. - : 24.02.2020.
7. - [ ] - : <https://fondpriroda.by/partners/freestyle/>. — : 24.02.2020.
8. [ ] - : <http://energoeffekt.gov.by/about>. - : 25.02.2020.
9. 18 2016 . 216 [ ] - : [http://pravo.by/upload/docs/op/C21600216\\_1459198800.pdf](http://pravo.by/upload/docs/op/C21600216_1459198800.pdf). - : 25.02.2020.
10. : 8 . 2015 . 239-3. 11 2014 . [ ] - : [http://minenergo.gov.by/dfiles/000437\\_303862\\_\\_\\_\\_\\_ob\\_energosberezhenii\\_2015.pdf](http://minenergo.gov.by/dfiles/000437_303862_____ob_energosberezhenii_2015.pdf). - : 26.02.2020.
11. [ ] — : [https://rep.bntu.by/bitstream/handle/data/51065/EHnergeticheskoe\\_obsledovanie\\_uchrezhdeniya\\_obrazovaniya\\_Polockij\\_gosudarstvennyj\\_universitet.pdf?sequence=1](https://rep.bntu.by/bitstream/handle/data/51065/EHnergeticheskoe_obsledovanie_uchrezhdeniya_obrazovaniya_Polockij_gosudarstvennyj_universitet.pdf?sequence=1). - : 26.02.2020.

12. [ ]. - :  
[https://www.abok.rn/for\\_spec/articles.php?nic=N6157](https://www.abok.rn/for_spec/articles.php?nic=N6157). - : 27.02.2020.
13. [ ]. - : [http://nizrp.narod.ru/metod/kafeconiorgpr/2019\\_01\\_25\\_01.pdf](http://nizrp.narod.ru/metod/kafeconiorgpr/2019_01_25_01.pdf). - : 28.02.2020.
14. [ ]. - :  
[https://www.bsmu.by/downloads/kafedri/k\\_fiziki/6.pdf](https://www.bsmu.by/downloads/kafedri/k_fiziki/6.pdf). - :  
 07.03.2020.
15. 69 16.06.2016 «  
 02.06.2014 48».  
 26 2008 . [ ].  
 - : [https://kodeksy-by.com/norm\\_akt/source-%D0%1%D1%82%D0%B0%D1%82%D0%B8%D1%81%D1%82%D0%B8%D1%87%D0%B5%D1%81%D0%BA%D0%B8%D0%B9%20%D0%BA%D0%BE%D0%BC%D0%B8%D1%82%D0%B5%D1%82%20%D0%A0%D0%91/type-%D0%9F%D0%BE%D1%81%D1%82%DO%BO%DO%BD%DO%BE%DO%B2%DO%BB%DO%B5%DO%BD%DO%B8%DO%B5/69-16.06.2016.htm](https://kodeksy-by.com/norm_akt/source-%D0%1%D1%82%D0%B0%D1%82%D0%B8%D1%81%D1%82%D0%B8%D1%87%D0%B5%D1%81%D0%BA%D0%B8%D0%B9%20%D0%BA%D0%BE%D0%BC%D0%B8%D1%82%D0%B5%D1%82%20%D0%A0%D0%91/type-%D0%9F%D0%BE%D1%81%D1%82%DO%BO%DO%BD%DO%BE%DO%B2%DO%BB%DO%B5%DO%BD%DO%B8%DO%B5/69-16.06.2016.htm). -  
 : 08.03.2020.
16. 104 [ ]. - :  
<https://arvas.by/teploschetchiki/product/view/2/1>. - : 08.03.2020.
17. [ ]. - :  
<https://akoterm.com/ru>. — : 08.03.2020.
18. [ ]. - :  
[https://www.abok.ru/for\\_spec/articles.php?nid=4619](https://www.abok.ru/for_spec/articles.php?nid=4619). — : 10.03.2020.
19. [ ]. - :  
<https://mshp.gov.by/arekomendacii/prek/metodikaTER.pdf>. - :  
 11.03.2020.
20. , . . .  
 / . . . - : -1, 2004. - 180 .
21. , . . . / . . . - :  
 -1, 2005. - 160 .
22. , . . . / . . .  
 , . . . , . . . - :  
 , 2007. - 268 .
23. , . . .  
 / . . . . — : , 2009. - 198 .

24. [ ]. - :  
<http://www.citiair.ru/pages/vent/recuperation/recuperrotor.html>. -  
 : 15.03.2020.
25. [ ]. - :  
<https://dom-i-remont.info/posts/ventilj-acij-a-rotomyj-rekuperator-ustrojstvo-princzip-raboty-plyusy-i-minusy/>. -  
 : 15.03.2020.
26. [ ]. - :  
<https://www.remontnik.com/articles/11111/>. -  
 : 15.03.2020.
27. [ ]. - :  
<https://pue8.ru/nizkovoltnye-seti-0-4kv/718-gazorazryadnye-lampy-tipy-i-ikh-primenenie.html>. -  
 : 17.03.2020.
28. [ ]. - :  
<https://helex.pro/product-details/prozhektor-sfdde/>. -  
 : 18.03.2020.
29. [ ]. — :  
<http://strport.ru/elektrooborudovanie-svet-osveshchenie/vidy-ulichnogo-osveshcheniya#Metallgalogennyelampy>. -  
 : 18.03.2020.
30. [ ]. - :  
<https://borisov-praktik.by/catalog/elektroovary/lampochki/lyuminestnyye/117386/>. -  
 : 18.03.2020.
31. [ ]. - :  
[https://ru.wikipedia.org/wiki/%D0%9B%D1%8E%D0%BC%D0%B8%D0%BD%D0%B5%D1%81%D1%86%D0%B5%D0%BD%D1%82%D0%BD%D0%B0%D1%8F\\_%D0%BB%D0%BO%D0%BC%D0%BF%D0%BO](https://ru.wikipedia.org/wiki/%D0%9B%D1%8E%D0%BC%D0%B8%D0%BD%D0%B5%D1%81%D1%86%D0%B5%D0%BD%D1%82%D0%BD%D0%B0%D1%8F_%D0%BB%D0%BO%D0%BC%D0%BF%D0%BO). -  
 : 18.03.2020.
32. [ ]. - :  
[https://studbooks.net/2090082/matematika\\_himiya\\_fizika/meropriyatiya\\_snizheniyu\\_neproizvodstvennyh\\_poten\\_energii\\_povyshenie\\_energoeffektivnosti](https://studbooks.net/2090082/matematika_himiya_fizika/meropriyatiya_snizheniyu_neproizvodstvennyh_poten_energii_povyshenie_energoeffektivnosti). -  
 : 18.03.2020.
33. [ ]. - :  
<https://www.remontnik.com/articles/11111/>. -  
 : 15.03.2020.
34. [ ]. - :  
[https://ru.wikipedia.org/wiki/%D0%A7%D0%B0%D1%81%D1%82%D0%BE%D1%82%D0%BD%D0%BE-%D1%80%D0%B5%D0%B3%D1%83%D0%BB%D0%B8%D1%80%D1%83%D0%B5%D0%BC%D1%8B%D0%B9\\_%D0%BF%D1%80%D0%B8%D0%B2%D0%BE%D0%B4#%D0%9F%D1%80%D0%B8%D0%BC%D0%B5%D0%BD%D0%B5%D0%BD%D0%B8%D0%B5\\_%D0%A7%D0%A0%D0%9F](https://ru.wikipedia.org/wiki/%D0%A7%D0%B0%D1%81%D1%82%D0%BE%D1%82%D0%BD%D0%BE-%D1%80%D0%B5%D0%B3%D1%83%D0%BB%D0%B8%D1%80%D1%83%D0%B5%D0%BC%D1%8B%D0%B9_%D0%BF%D1%80%D0%B8%D0%B2%D0%BE%D0%B4#%D0%9F%D1%80%D0%B8%D0%BC%D0%B5%D0%BD%D0%B5%D0%BD%D0%B8%D0%B5_%D0%A7%D0%A0%D0%9F). -  
 : 19.03.2020.

35. [ ]. - :

[https://ru.wikipedia.org/wiki/%D0%A1%D0%B2%D0%B5%D1%82%D0%BE%D0%B4%D0%B8%D0%BE%D0%B4%D0%BD%D0%BO%D1%8F\\_%D0%BB%D0%B0%D0%BC%D0%BF%D0%B0](https://ru.wikipedia.org/wiki/%D0%A1%D0%B2%D0%B5%D1%82%D0%BE%D0%B4%D0%B8%D0%BE%D0%B4%D0%BD%D0%BO%D1%8F_%D0%BB%D0%B0%D0%BC%D0%BF%D0%B0). - : 19.03.2020.

36. /  
.- , 2019. - 122 .

37. -  
127 16.12.2013:  
16.12.2013 127.  
, 2013. - 28 .

38. : 33 30.04.2013:  
30.04.2013 105. - , 2013. - 26 .

39. 4.02.01-03. , ,  
/ . -  
2.04.05-91). - , 2003. - 78 .

40. , , :  
115 16.11.2011:  
16.11.2011 115. —  
, 2011. - 20 .

41. , :  
132 26.12.2013:  
26.12.2013 132. -  
, 2013. - 29 .

42. 45-2.04-153-2009 (02250).  
/

43. ( 2.04.05-98). - , 2009. - 103 .  
45-2.02-315-2018.  
/

44. 1-2005.  
./

45. . - , 2005. - 35 .  
45-2.02-190-2010.

/

46. . - , 2010. - 28 .

. - , 2014. - 46 .