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From: timetable in A Dictionary of Education » Abbas, A. M., & Tsang, E. P. K. (2001). Constraint-based timetabling—a case study. In Proceedings of ACS/IEEE international conference on computer systems and applications (AICCSA’01) (p. 67). Los Alamitos: IEEE Comput. Soc. Google Scholar Abboud, N., Sakawa, M., & Inuiguchi, M. (1998). School scheduling using threshold accepting. Cybernetics and Systems, 29(6), 593–611. Google Scholar Abramson, D. (1991). Constructing school timetables using simulated annealing: sequential and parallel algorithms. Management Science, 37(1), 98–113. Google Scholar Abramson, D., & Abela, J. (1991). A parallel genetic algorithm for the solving the school timetabling problem. In Proceedings of the fifteenth Australian conference: division of information technology, C.S.I.R.O. (pp. 1–11). Google Scholar Abramson, D., Krishnamoorthy, M., & Dang, H. (1999). Simulated annealing cooling schedules for the school timetabling problem. Asia-Pacific Journal of Operational Research, 16(1), 1–22. Google Scholar Alvarez-Valdes, R., Martin, G., & Tamarit, J. M. (1996). Constructing good solutions for the Spanish school timetabling problem. Journal of the Operational Research Society, 47(10), 1203–1215. Google Scholar Alvarez-Valdes, R., Parreno, F., & Tamarit, J. M. (2002). A tabu search algorithm for assigning teachers to courses. TOP: An Official Journal of the Spanish Society of Statistics and Operations Research, 10(2), 239–259. Google Scholar Appleby, J. S., Blake, D. V., & Newman, E. A. (1961). Techniques for producing school timetables on computer and their application to other scheduling problems. The Computer Journal, 3(4), 237–245. Google Scholar Aust, R. J. (1976). An improvement algorithm for school timetabling. Computer Journal, 19(4), 339–343. Google Scholar Avella, P., D’Auria, B., Salerno, S., & Vasil’ev, I. (2007). A computational study of local search algorithms for Italian high school timetabling. Journal of Heuristics, 13(6), 543–556. Google Scholar Beasley, J. (1990). OR library: distributing test problems by electronic mail. Journal of the Operational Research Society, 41(11), 1069–1072. Google Scholar Beasley, J. F. (2010). OR library. . Last accessed 1 February 2010. Bedoya, C. F., & Santos, M. (2003). A non-standard genetic algorithm approach to solve constrained school timetabling problems. Eurocast, 26–37. Beligiannis, G. N., Moschopoulos, C. N., Kaperonis, G. P., & Likothanassis, S. D. (2008). Applying evolutionary computation to the school timetabling problem: the Greek case. Computers and Operations Research, 35, 1265–1280. Google Scholar Beligiannis, G. N., Moschopoulos, C. N., & Likothanassis, S. D. (2009). A genetic algorithm approach to school timetabling. Journal of the Operational Research Society, 60(1), 23–42. Google Scholar Bello, G. S., Rangel, M. C., & Boeres, M. C. S. (2008). An approach for the class/teacher timetabling problem. In Proceedings of the 7th international conference on the practice and theory of automated timetabling (PATAT2008). patat2008/PATAT_7_PROCEEDINGS/Papers/Boeres-WA2b.pdf. Last accessed 05/02/10. Google Scholar Birbas, T., Daskalaki, S., & Housos, E. (1997). Timetabling for Greek high schools. Journal of the Operational Research Society, 48(2), 1191–1200. Google Scholar Birbas, T., Daskalaki, S., & Housos, E. (2009). School timetabling for quality student and teacher schedules. Journal of Scheduling, 12(2), 177–197. Google Scholar Boland, N., Hughes, B. D., Merlot, L. T. G., & Stuckey, P. J. (2008). New integer linear programming for course timetabling. Computers and Operations Research, 35, 2209–2233. Google Scholar Bufe, M., Fischer, T., Gubbels, H., Hacker, C., Hasprich, O., Scheibel, C., Weicker, K., Weicker, N., Wenig, M., & Wolfangel, C. (2001). Automated solution of highly constrained school timetabling problem. In Proceedings of the EvoWorkshops on the applications of evolutionary computing (pp. 431–440). Google Scholar Burke, E., Hart, E., Kendall, G., Newall, J., Ross, P., & Schulenburg, S. (2003). Hyper-heuristics: an emerging direction in modern research. In Handbook of metaheuristics (pp. 457–474). Dordrecht: Kluwer Academic. Chap. 16. Google Scholar Burke, E. K., de Wera, D., & Kingston, J. F. (2004). Applications of timetabling. In Handbook of graph theory (pp. 445–474). London: Chapman & Hall, Chap. 5.6. Google Scholar Burke, E. K., McCollum, B., Meisels, A., Petrovic, S., & Qu, R. (2007). A graph-based hyper-heuristic for educational timetabling problems. European Journal of Operational Research (EJOR), 176, 177–192. Google Scholar Calderia, J. P., & Ross, A. C. (1997). School timetabling using genetic search. In Proceedings of the international conference on the practice and theory of automated timetabling (PATAT’97) (pp. 115–122). Google Scholar Carrassco, M. P., & Pato, M. V. (2004). A comparison of discrete and continuous neural network approaches to solve the class/teacher timetabling problem. European Journal of Operational Research, 153, 65–79. Google Scholar Carter, M. W., & Tovey, C. A. (1992). When is the classroom assignment problem hard? Operations Research, 40(S1), 28–29. Google Scholar Carter, M. W., Laporte, G., & Lee, S. Y. (1996). Examination timetabling: algorithmic strategies and applications. The Journal of the Operational Research Society, 47(3), 373–383. Google Scholar Carter, M. W., & Laporte, G. (1997). Recent developments in the practical course timetabling. In E. Burke & M. Carter (Eds.), Lecture notes in computer science: Vol. 1408. Practice and theory of automated timetabling II (pp. 3–19). Berlin: Springer. Google Scholar Cedeira-Pena, A., Carpente, L., Farina, A., & Seco, D. (2008). New approaches for the school timetabling problem. In Proceedings of the 7th Mexican conference on artificial intelligence (MICAI 2008) (pp. 261–267). Google Scholar Ciscon, L. A., De Oliveira, H. C. B., Andrade, M. C. A., Alvarenga, G. B., & Esmin, A. A. A. (2006). The school timetabling problem: a focus on elimination of open periods and isolated classes. In Proceedings of the sixth international conference on hybrid intelligent systems and fourth conference on neuro-computing and evolving intelligence, HIS-NCEI, 2006 (p. 70). New York: IEEE Press. Google Scholar Colorni, A., Dorigo, M., & Maniezzo, V. (1990). Genetic algorithms: a new approach to the timetable problem. NATO ASI Series, F82, 235–239. Google Scholar Colorni, A., Dorigo, M., & Maniezzo, V. (1998). Metaheuristics for high school timetabling. Computational Optimization and Applications, 9, 275–298. Google Scholar Cooper, T. B., & Kingston, J. H. (1993). The solution of real instances of the timetabling problem. The Computer Journal, 36(7), 645–653. Google Scholar Cooper, T. B., & Kingston, J. H. (1995). A program for constructing high school timetables. In Proceedings of the first international conference on the practice and theory of automated timetabling. Google Scholar Cooper, T. B., & Kingston, J. H. (1996). The complexity of timetable construction problems. In Selected papers from the first international conference on the practice and theory of automated timetabling (pp. 283–295). Google Scholar Cumming, A., & Paetcher, B. (2000). Post-publication timetabling. In Proceedings of the 3rd international conference on the practice and theory of automated timetabling (PATAT 2000) (pp. 107–108). Google Scholar de Gans, O. B. (1981). A computer timetabling system for secondary schools in the Netherlands. European Journal of Operational Research, 7(2), 175–182. Google Scholar de Haan (2004). Timetabling in dutch secondary schools. Masters Thesis, University of Twente. de Haan, P., Landman, R., Post, G., & Ruizenaar, H. (2007a). A case study for timetabling in Dutch high schools. Practice and Theory of Automated Timetabling, IV, 267–279. Google Scholar de Haan, P., Landman, R., Post, G., & Ruizenaar, H. (2007b). A four-phase approach to a timetabling problem for secondary schools. In E. K. Burke & H. Rudova (Eds.), Lecture notes in computer science: Vol. 3867. The practice and theory of automated timetabling VI (pp. 267–279). Berlin: Springer. Google Scholar de Werra, D. (1971). Construction of school timetables by flow methods. Information Systems and Operational Research, 9(1), 12–22. Google Scholar Di Stephano, C., & Tettamanzi, A. G. B. (2001). An evolutionary algorithm for solving the school timetabling problem. In Proceedings of the EvoWorkshops 2001 (pp. 659–672). Berlin: Springer. Google Scholar Drexl, A., & Salewski, F. (1997). Distribution requirements and compactness constraints in school timetabling. European Journal of Operational Research, 102(1), 193–214. Google Scholar Eikelder, H. M. M., & Willemen, R. J. (2001). Some complexity aspects of secondary school timetabling problems. In Lecture notes in computer science: Vol. 2079/2001. Practice and theory of automated timetabling III (pp. 18–27). Google Scholar Even, S., Itai, A., & Shamir, A. (1976). On the complexity of timetable and multicommodity flow problems. SIAM Journal on Computing, 5(4), 691–703. Google Scholar Fernandes, C., Caldeira, J. P., Melicio, F., & Rosa, A. (1999a). High school weekly timetabling by evolutionary algorithms. In Proceedings of the ACM symposium on applied computing (pp. 344–350). Google Scholar Fernandes, C., Caldeira, J. P., Melicio, F., & Rosa, A. (1999b). Evolutionary algorithm for school timetabling. In W. Banzhaf, J. Daida, A. E. Eiben, M. H. Garzon, V. Honavar, M. Jakiela & R. D. Smith (Eds.), Proceedings of the genetic and evolutionary computation conference (p. 1777). Google Scholar Filho, G. R., & Lorena, L. A. N. (2001). A constructive evolutionary approach to school timetabling. In Lecture notes in computer science: Vol. 2037. Proceedings of the EvoWorkshops on applications of evolutionary computing (pp. 130–139). Berlin: Springer. Google Scholar Grobner, M., Wilke, P., & Buttcher, S. (2003). A standard framework for timetabling problems. In E. K. Burke & P. De Causmaecker (Eds.), Lecture notes in computer science: Vol. 2740. Proceedings of the international conference on the practice and theory of automated timetabling (PATAT 2002) (pp. 24–38). Berlin: Springer. Google Scholar Hertz, A., & Robert, V. (1998). Constructing a course schedule by solving a series of assignment type problems. European Journal of Operational Research, 108, 585–603. Google Scholar Jacobsen, F., Bortfeldt, A., & Gehring, H. (2006). Timetabling at German secondary schools: tabu search versus constraint programming. In E. K. Burke & H. Rudova (Eds.), Proceedings of the international conference on the practice and theory of automated timetabling (PATAT 2006) (pp. 439–442). ISBN 80-210-3726-1. Google Scholar Junginger, W. (1986). Timetabling in Germany—a survey. Interfaces, 16(4), 66–74. Google Scholar Kingston, J. H. (2000). Modelling timetable problems with STTL. In E. Burke & W. Erben (Eds.), PATAT’00: selected papers from the third international conference on the practice and theory of automated timetabling (pp. 309–321). Berlin: Springer. Google Scholar Kingston, J. H. (2004). A tiling algorithm for high school timetabling. In Lecture notes in computer science: Vol. 3616/2005. Practice and theory of automated timetabling V (pp. 208–225). Berlin: Springer. Google Scholar Kingston, J. H. (2006). The KTS high school timetabling systems. In E. K. Burke & H. Rudova (Eds.), Proceedings of the international conference on the practice and theory of automated timetabling (PATAT 2006) (pp. 181–195). ISBN 80-210-3726-1. Google Scholar Kingston, J. H. (2007). Hierarchical timetable construction. In E. Burke & H. Rudova (Eds.), Lecture notes in computer science: Vol. 3867. PATAT VI (pp. 294–307). Google Scholar Kingston, J. H. (2008). Resource assignment in high school timetabling. In Proceedings of the 7th international conference on the practice and theory of automated timetabling (PATAT2008). patat2008/PATAT7PROCEEDINGS/Papers/Kingston-WA2b.pdf. Last accessed 05/02/10. Google Scholar Kingston, J. H. (2010). Solving the general high school timetabling problem. In Proceedings of the 8th international conference on the practice and theory of automated timetabling (PATAT 2010) (pp. 517–518). Google Scholar Kwan, A. C. M., Chung, K. C. K., Yip, K. K. K., & Tam, V. (2003). An automated school timetabling system using hybrid intelligent techniques. In Lecture notes in computer science (Vol. 2871, pp. 124–134). Google Scholar Kwok, L., Kong, S., & Kam, Y. (1997). Timetabling in Hong Kong secondary schools. Computer Education, 28(3), 173–183. Google Scholar Landman, R. (2005). Creating good-quality timetables for Dutch high schools. Masters Thesis, University of Twente, the Netherlands. Lara, C., Flores, J. J., & Calderon, F. (2008). Solving a school timetabling problem using a bee algorithm. In Lecture notes in computer science (Vol. 5317, pp. 664–674). Google Scholar Lawrie, N. L. (1969). An integer linear programming model of a school timetabling problem. The Computer Journal, 12(4), 307–316. Google Scholar Lion, J. (1966). Matrix reduction using the Hungarian method for the generation of school timetables. Communications of the ACM, 9(5), 349–354. Google Scholar Lion, J. (1967). The Ontario school timetabling problem. The Computer Journal, 10(1), 14–21. Google Scholar Liu, Y., Zhang, D., & Leung, S. C. H. (2009). A simulated annealing algorithm with a new neighbourhood structure for the timetabling problem. In GEC’09: proceeding of the first ACM/SIGEVO summit on genetic and evolutionary computation (pp. 381–386). Google Scholar Lohnertz, M. (2002). A timetabling system for the German gymnasium. In Proceedings of the fourth international conference on the practice and theory of automated timetabling. Google Scholar Marte, M. (2002). Models and algorithms for school timetabling—a constraint-programming approach. Phd Thesis, University of Munchen. Marte, M. (2006). Towards constraint-based grammar school timetabling. . Last accessed 12 February 2010. McCollum, B., McMullan, P., Paechter, B., Lewis, R., Schaerf, A., Di Gaspero, L., Parkes, A. J., Qu, R., & Burke, E. K. (2009). Setting the research agenda in automated timetabling: the second international timetabling competition. INFORMS Journal on Computing. doi:10.1287/ijoc.1090.0320. Google Scholar Melicio, F., Calderia, J. P., & Rosa, A. (2006). THOR: a tool for school timetabling. In E. K. Burke & H. Rudova (Eds.), Proceedings of the 6th international conference on the practice and teaching of automated timetabling (PATAT 2006) (pp. 532–535). Google Scholar Meisels, A., Ell-sana, J., & Gudes, E. (1997). Decomposing and solving timetabling constraint networks. Computational Intelligence, 13(4), 486–505. Google Scholar Minh, K. N. T. T., Thanh, N. D. T., Trang, K. T., & Hue, N. T. T. (2010). Using tabu search for solving a high school timetabling problem. Studies in Computational Intelligence, 283, 305–313. Google Scholar Mohammadi, M. S., & Lucas, C. (2008). Cooperative co-evolution for school timetabling problem. In Proceedings of the 7th international conference on cybernetic intelligent systems (CIS 2008) (pp. 1–7). Google Scholar Monfroglio, A. (1996). Timetabling through constrained heuristic search and genetic algorithms. Software—Practice and Experience, 26(3), 251–279. Google Scholar Moschopoulos, C. N., Alexakos, C. E., Dosi, C., Beligiannis, G. N., & Likothanassis, S. D. (2009). A user-friendly evolutionary tool for high-school timetabling. Studies in Computational Intelligence, 166, 149–162. Google Scholar Moura, A. V., & Scaraficci, R. A. (2010). A GRASP strategy for a more constrained school timetabling problem. International Journal of Operational Research, 7(2), 152–170. Google Scholar Nurmi, K., & Kyngas, J. (2007). A framework for school timetabling problem. In Proceedings of the 3rd multidisciplinary international scheduling conference: theory and application. 20Framework%20.for%20School%20Timetabling%20Problem.pdf. Last accessed 15 February 2012. Google Scholar Nurmi, K., & Kyngas, J. (2008). A conversion scheme for turning a curriculum-based timetabling problem into a school timetabling problem. In Proceedings of the 7th international conference on the practice and theory of automated timetabling (PATAT 2008), Montreal. patat2008/PATAT_7_PROCEEDINGS/Papers/Nurmi-TC1.pdf. Last accessed 12 February 2010. Google Scholar Ohtsubo, M., Kurashige, K., & Kameyama, Y. (2006). Approach to the timetabling problems for junior high schools. Journal of Japan Industrial Management Association, 57(3), 231–242. Google Scholar Ostler, J., & Wilke, P. (2010). The Erlangen advanced timetabling system (EATTS) unified XML file format for the specification of timetabling systems. In Proceedings of the 8th international conference on the practice and theory of automated timetabling (PATAT 2010) (pp. 447–464). Google Scholar Papoutsis, K., Valouxis, C., & Housos, E. (2003). A column generation approach for the timetabling problem of Greek high schools. Journal of Operational Research Society, 54(3), 230–238. Google Scholar Pillay, N., & Banzhaf, W. (2009). A study of heuristic combinations for hyper-heuristic systems for the uncapacitated examination timetabling problem. European Journal of Operational Research (EJOR), 197, 482–491. Google Scholar Pillay, N. (2010). A study into hyper-heuristics for the school timetabling problem. In SAICSIT 2010: fountains of computing research (pp. 258–264). ACM for Computing Machinery. Google Scholar Post, G. F., & Ruizenaar, H. W. A. (2004). Clusterschemes in dutch secondary schools (Memorandum No. 1707). University of Twente, the Netherlands. Post, G., Ahmadi, S., Daskalaki, S., Kingston, J. H., Kyngas, J., Nurmi, C., Ranson, D., & Ruizenaar, H. (2008). An XML format for benchmarks in high school timetabling. In Proceedings of the 7th international conference on the practice and theory of automated timetabling (PATAT 2008), Montreal. patat2008/PATAT_7_PROCEEDINGS/Papers/Post-WD2a.pdf. Last accessed 12 February 2010. Google Scholar Post, G., Ahmadi, S., & Geertsema, F. (2010a). Cyclic transfers in school timetabling. OR Spectrum. doi:10.1007/s00291-010-0227-y. Google Scholar Post, G., Kingston, J. H., Ahmadi, S., Daskalaki, S., Gogos, C., Kyngas, G., Nurmi, C., Santos, H., Rorije, B., & Schaerf, A. (2010b). An XML format for benchmarks in high school timetabling. In Proceedings of the 8th international conference on the practice and theory of automated timetabling (PATAT 2010) (pp. 347–352). Google Scholar Raghavjee, R., & Pillay, N. (2008). An application of genetic algorithms to the school timetabling problem. In C. Cilliers, L. Barnard & R. A. Botha (Eds.), Proceedings of SAICSIT 2008 (pp. 193–199). New York: ACM. Google Scholar Raghavjee, R., & Pillay, N. (2009). Evolving solutions to the school timetabling problem. In Proceedings of the world congress on nature and biologically inspired computing (NaBIC’09) (pp. 1524–1527). New York: IEEE Press. Google Scholar Raghavjee, R., & Pillay, N. (2010a). An informed genetic algorithm for the high school timetabling problem. In Proceedings of SAICSIT 2010: fountains of computing research (pp. 408–412). New York: ACM. Google Scholar Raghavjee, R., & Pillay, N. (2010b). Using genetic algorithms to solve the South African school timetabling problem. In Proceedings of the world congress on nature and biologically inspired computing (NaBIC’10). New York: IEEE Press. Google Scholar Reis, L. P., & Oliveira, E. (2000). A language for specifying complete timetabling problems. In PATAT’00: selected papers from the 3rd international conference on the practice and theory of automated timetabling (pp. 322–341). Google Scholar Ribic, S., & Konjicija, S. (2010). A two phase integer programming approach to solving the school timetabling problem. In Proceedings of the international conference on information technology interfaces (ITI) (No. 5546473, pp. 651–656). Google Scholar Santos, H. G., Ochi, L. S., & Souza, M. J. F. (2004). An efficient tabu search heuristic for the school timetabling problem. In Lecture notes in computer science (Vol. 3059, pp. 468–481). Google Scholar Santos, H. G., Ochi, L. S., & Souza, M. J. F. (2005). A tabu search heuristic with efficient diversification strategies for the class/teacher timetabling problem. Journal of Experimental Algorithms, 10, 2.9. doi:10.1145/1064546.1180621. Google Scholar Santos, H. G., Uchoa, E., Ochi, L. S., & Maculan, N. (2008). Strong bounds with cut and column generation for class-teacher timetabling. In Proceedings of the 7th international conference on the practice and theory of automated timetabling (PATAT 2008), Montreal. patat2008/PATAT_7_PROCEEDINGS/Papers/Santos-WD2b.pdf. Last accessed 12 February 2010. Google Scholar Schaerf, A. (1996). Tabu search techniques for large high-school timetabling problems (Technical Report CS-R9611 1996). Computer Science/Department of Interactive Systems, Centrum Voor Wiskunder en Informatica (CWI). ISSN 0169-118X. Schaerf, A. (1999a). A survey of automated timetabling. Artificial Intelligence Review, 13(2), 87–127. Google Scholar Schaerf, A. (1999b). Local search methods for high school timetabling problems. IEEE Transactions on Systems, Man and Cybernetics, 29(4), 377–386. Google Scholar Slechta, P. (2005). Decomposition and parallelization of multi-resource timetabling problem. In E. Burke & M. Trick (Eds.), Lecture notes in computer science (Vol. 3616, pp. 177–189). Google Scholar Smith, K. A., Abramson, D., & Duke, D. (2003). Hopfield neural networks for timetabling: formulations, methods, and comparative results. Computers and Industrial Engineering, 44, 283–305. Google Scholar Srndic, N., Dervisevic, M., Pandzo, E., & Konjicija, S. (2009). The application of a parallel genetic algorithm to timetabling of elementary school classes: a coarse grained approach. In Proceedings of ICAT 2009–2009 22nd international symposium on information, communication and automation technologies (pp. 1–5). New York: IEEE Press. Google Scholar Souza, M. J. F. (2004). A GRASP-tabu search algorithm for solving school timetabling problems. Metaheuristics: Computer Decision-Making, 659–672. Valouxis, C., & Housos, E. (2003). Constraint programming approach for school timetabling. Computers and Operations Research, 30, 1555–1572. Google Scholar Wilke, P., Grobner, M., & Oster, N. (2002). A hybrid genetic algorithm for school timetabling. In Lecture notes in computer science: Vol. 2557/2002. AI 2002: advances in artificial intelligence (pp. 455–464). Berlin: Springer. Google Scholar Wilke, P., & Ostler, J. (2008). Solving the school timetabling problem using tabu search, simulated annealing, genetic and branch & bound algorithms. In Proceedings of the 7th international conference on the practice and theory of automated timetabling (PATAT 2008), Montreal. patat2008/PATAT_7_PROCEEDINGS/Papers/Wilke-WD2c.pdf. Last accessed 12 February 2010. Google Scholar Wilke, P., & Killer, H. (2010a). A comparison of algorithms for solving school and course timetabling problems using the Erlangen advanced timetabling system. In Proceedings of the 8th international conference on the practice and theory of automated timetabling (PATAT 2010) (pp. 427–439). Google Scholar Wilke, P., & Killer, H. (2010b). Walk down jump up algorithm—a new hybrid algorithm for timetabling problems. In Proceedings of the 8th international conference on the practice and theory of automated timetabling (PATAT 2010) (pp. 440–446). Google Scholar Willemen, R. J. (2002). School timetabling construction: algorithms and complexity. Phd Thesis, Technische Universiteit Eindhoven, The Netherlands. Wood, J., & Whitaker, D. (1998). Student central school timetabling. Journal of the Operational Research Society, 49(11), 1146–1152. Google Scholar Wright, M. (1996). School timetabling using heuristic search. Journal of the Operational Research Society, 47, 347–357. Google Scholar Yigit, T. (2007). Constraint-based school timetabling using hybrid genetic algorithms. In Lecture notes in computer science (Vol. 4733, pp. 848–855). Google Scholar Yongkai, L., Defu, Z., & Leung, S. C. H. (2009). A simulated annealing algorithm with a new neighborhood structure for the timetabling problem. In Proceedings of the 2009 world summit on genetic and evolutionary computation (GEC’09) (pp. 381–386). Google Scholar Yoshikawa, M., Kaneko, K., Nomura, Y., & Watanabe, M. (1994). A constraint-based approach to high-school timetabling problems: a case study. In AAAI’94: proceedings of the twelfth national conference on artificial intelligence (pp. 1111–1116). Menlo Park: Am. Assoc. of Artificial Intelligence. Google Scholar Yoshikawa, M., Kaneko, K., Yamanouchi, T., & Watanabe, M. (1996). A constraint-based high school scheduling system. In IEEE expert: intelligent systems and their applications (pp. 63–72). IEEE Educational Activities Department. Google Scholar Zuters, J. (2007). Neural networks to enrich fitness function in a GA-based school timetabling model. In Proceedings of WSEAS transactions on information science and application (Vol. 4(2), pp. 346–353). Google Scholar Page 2 Skip to main content From: A survey of school timetabling researchMethodStudiesProblemsConstraintsBee algorithmsLara et al. (2008)Two real-world high school problemsPR1, PR2, NC1, NC2Constraint programmingMarte (2002)German gymnasium schoolPR1, PR2, NC1, NC2, RU2, W1, W3, PD1, PD3, L1, L3Valouxis and Housos (2003)Greek high schoolPR1, PR2, NC1, NC2, NC3, PD1, PD3, PD4, P2Constraint satisfaction methodsMeisels et al. (1997)–PR1, PR2, NC1, NC2Abbas and Tsang (2001)–PR1, PR2, NC1, NC2Cyclic transfersPost et al. (2010a)German and English secondary schoolsPR1, PR2, NC1, NC2, RU2, RU8, W1, W3, PD1, PD2, L5Evolutionary algorithmsColorni et al. 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(2006)Brazilian schoolPR1, PR2, NC1, NC2, PD1, PD3Nurmi and Kyngas (2007)Generated problems (Beasley 2010) Finnish schoolsPR1, PR2, NC1, NC2, NC3, W1, W2, W3, PD1, PD2, PD4, L3Yigit (2007)Technical and vocational Turkish high schoolsPR1, PR2, NC1, NC2Beligiannis et al. (2008)Greek high schoolPR1, PR2, NC1, NC2, NC3, RU2, PD1, PD2, PD4, L2, L4Mohammadi and Lucas (2008)–PR1, PR2, PR3, NC1, NC2Nurmi and Kyngas (2008)ITC’07 data set (McCollum et al. 2009)PR1, PR2, NC1, NC2, NC3, RU2, PD1Raghavjee and Pillay (2008)Generated problems (Beasley 2010)PR1, PR2, NC1, NC2, NC3Beligiannis et al. (2009)Greek high schoolPR1, PR2, NC1, NC2, NC3, RU2, PD1, PD2, PD4, L2, L4Moschopoulos et al. (2009)Greek high schoolPR1, PR2, NC1, NC2, NC3, RU2, PD1, PD2, PD4, L2, L4Raghavjee and Pillay (2009)Greek high schoolPR1, PR2, NC1, NC2, NC3, RU2, PD1, PD2, PD4, L2, L4Srndic et al. (2009)–PR1, PR2, NC1, NC2Raghavjee and Pillay (2010a)South African high schoolPR1, PR2, NC1, NC2, P2, L1, L4Raghavjee and Pillay (2010b)South African primary schoolPR1, PR2, NC1, NC2, P2, L1, L4South African high schoolPR1, PR2, NC1, NC2, RU5, PD3, L1, L3GRASPMoura and Scaraficci (2010)Brazilian high schoolPR1, PR2, NC1, NC2Integer programmingLawrie (1969)–PR1, PR2, NC1, NC2Birbas et al. (1997)Greek high schoolPR1, PR2, NC1, NC2, W1, W3, RU2, PD1, PD2, PD3, L1Papoutsis et al. (2003)Greek high schoolPR1, PR2, NC1, NC2, W1, PD1, PD2, PD3, PD4, P2Boland et al. (2008)Australian high schoolPR1, PR2, NC1, NC2, RU2, RU4, PD1Santos et al. (2008)Brazilian high schoolPR1, PR2, NC1, NC2, RU2, PD1, PD2, L3Birbas et al. (2009)Greek high schoolPR1, PR2, NC1, NC2, RU2, PD1, PD2, PD3, P2, L1, L3, L5Ribic and Konjicija (2010)–PR1, PR2, PR3, NC1, NC2, RU2, RU5, RU8, PD1, L1Neural networksCarrassco and Pato (2004)Generated problems (Beasley 2010)PR1, PR2, NC1, NC2Simulated annealingAbramson and Abela (1991)Generated problems Australian schoolPR1, PR2, NC1, NC2, NC3, RU2, W3, L3Abramson et al. (1999)Generated problemsPR1, PR2, NC1, NC2, NC3Melicio et al. (2006)Portuguese schoolPR1, PR2, NC1, NC2Yongkai et al. (2009)Two real-world high school problemsPR1, PR2, NC1, NC2Tabu searchWright (1996)English comprehensive schoolPR1, PR2, NC1, NC2, RU6, PD1, PD2, L1, L2, L3Alvarez-Valdes et al. (2002)Spanish high schoolPR1, PR2, NC1, NC2Santos et al. (2004)Brazilian high schoolPR1, PR2, NC1, NC2, RU2, PD1, PD2, PD4, L3Santos et al. (2005)Brazilian high schoolPR1, PR2, NC1, NC2, RU2, PD1, PD2, PD4, L3Jacobsen et al. (2006)German high schoolPR1, PR2, NC1, NC2, NC3, RU2, RU7, RU8, W1, W2, PD1, PD3, PD4, P1, L1, L3Ohtsubo et al. (2006)Junior high schoolPR1, PR2, NC1, NC2Bello et al. (2008)Brazilian high schoolPR1, PR2, NC1, NC2, RU2, PD2, PD3, PD4, W1, L3Minh et al. (2010)Vietnam high schoolPR1, PR2, NC1, NC2Threshold acceptingAbboud et al. (1998)Generated problemsPR1, PR2, NC1, NC2, RU2, PD3, PD4, P1Tiling algorithmsKingston (2004)Australian high schoolPR1, PR2, NC1, NC2Kingston (2006)Australian high schoolPR1, PR2, NC1, NC2, NC3, RU5, W1, PD2, PD3, L3, L4Kingston (2008)Australian high school–Walk Down Jump Up AlgorithmWilke and Killer (2010b)German high schoolPR1, PR2, NC1, NC2, NC3, PD1Hybrid approachesYoshikawa et al. (1994)• Arc consistency• Hill climbing–PR1, PR2, NC1, NC2, PD1, PD3, L5Yoshikawa et al. (1996)• Arc consistency• Hill climbing–PR1, PR2, NC1, NC2, RU2, RU3, W1, PD3Schaerf (1996)• Tabu search• Randomize non ascendantItalian schoolsPR1, PR2, NC1, NC2, RU1, W1, PD2, PD3, P2, L3, L4Alvarez-Valdes et al. (1996)• Tabu search• Floyd-Warshall algorithmSpanish schoolsPR1, PR2, NC1, NC2, RU2, RU7, RU8, PD1, PD2, PD3, L1, L4Monfroglio (1996)• Genetic algorithms• Constrained heuristic search–PR1, PR2, NC1, NC2Drexl and Salewski (1997)• Greedy randomized algorithms• Genetic algorithmsGerman high schoolPR1, PR2, PR3, NC1, NC2, NC3, RU2, PD1, L1, L5Schaerf (1999b)• Tabu search• Randomize non ascendantItalian high schoolPR1, PR2, NC1, NC2, RU1, W1, PD2, PD3, P2, L3, L4Lohnertz (2002)• Tabu search• Graph coloring matching algorithmGerman gymnasium schoolPR1, PR2, NC1, NC2, RU2, L3Willemen (2002)• Tree search algorithm• Tabu searchDutch schoolPR1, PR2, NC1, NC2, NC3, RU2, RU5, PD3, L3Kwan et al. (2003)• Constraint technology• Heuristics• Local search with a tabu list–PR1, PR2, NC1, NC2de Haan (2004)• Beam search• Branch and bound algorithmKottenpark: Netherlands secondary schoolPR1, PR2, NC1, NC2, NC3, RU2, RU5, PD1, PD2, PD3, P2, L1, L2, L4, L5 Landman (2005)• Beam search• Branch and bound algorithm• Shifting algorithm• Re-coloring algorithmDutch schoolPR1, PR2, NC1, NC2, NC3, RU2, RU5, PD1, PD2, PD3, PD4, P2, L1, L4Post and Ruizenaar (2004)• Clustering algorithm• Branch and bound algorithmKottenpark: Netherlands secondary schoolPR1, PR2, NC1, NC2, NC3, RU2, RU4, RU6, RU8, PD1, PD2, PD3, P2, L1, L2, L4, L5Souza (2004)• GRASP• Tabu searchBrazilian high schoolPR1, PR2, NC1, NC2, RU2, W1, PD3, L3Avella et al. (2007)• Very large neighborhood search• Simulated annealingGenerated problems (Beasley 2010)PR1, PR2, NC1, NC2, RU2, W3, PD1, PD2, PD3, PD4, P2, L1de Haan et al. (2007a)• Clustering algorithm• Tabu searchNetherlands secondary schoolPR1, PR2, NC1, NC2, RU2, PD1, PD2, PD3, PD4, L3de Haan et al. (2007b)• Branch and bound algorithm• Dynamic priority rule• First-fit heuristic• Tabu searchNetherlands high schoolPR1, PR2, NC1, NC2, RU2, PD2, PD2, PD3, PD4, L3Zuters (2007)• Genetic algorithms• Neural networks–PR1, PR2, NC1, NC2, PD1, PD3, L2Cedeira-Pena et al. (2008)• Random ascent method• Genetic algorithms–PR1, PR2, NC1, NC2Liu et al. (2009)• Simulated annealing• Tabu search PR1, PR2, NC1, NC2, RU2, PD1, PD2, PD3, PD4, P2Comparative studiesColorni et al. (1998)• Simulated annealing• Tabu search• Genetic algorithmsItalian high schoolPR1, PR2, NC1, NC2, PD1, PD2 Smith et al. (2003)• Hopfield neural network• Greedy search• Simulated annealing• Tabu searchGenerated problems (Beasley 2010)PR1, PR2, NC1, NC2, NC3 Wilke and Ostler (2008)• Tabu search• Simulated annealing• Genetic algorithms• Branch and bound algorithmsGerman high schoolPR1, PR2, NC1, NC2, NC3, RU4 Wilke and Killer (2010b)• Genetic algorithms• Immune systems• Harmony search• Tabu search• Simulated annealing• Great deluge• Walk down jump upGerman high schoolPR1, PR2, NC1, NC2, NC3, RU4Distributed methodsSlechta (2005)–PR1, PR2, NC1, NC2Kingston (2010)–PR1, PR2, NC1, NC2, NC3, RU5, W1, PD2, PD3, L3, L4 Meaning of Time Table: A time table is a detailed plan showing the schedule of time allotment to various subjects and activities. Usually,time table is prepaid for a week, to be repeated.All the work in school is carried out systematically in tune with the time table.The successful working of a school depends on a suitable time table. Hence time table is said to be second school clock. 1. NEED FOR A TIME TABLE: A time table is necessary for the proper management of the affairs of a school. Through this, the head master knows the work every class and every teacher. The time table will help him in carrying out the work of the school effectively. 2. IMPORTANCE OF TIME TABLE: i) It ensures orderly work.It assigns proper persons for particular classes during appropriate periods in a proper manner. ii) It saves the time and energy of teachers and pupils by preventing duplication and overlapping. iii) It ensure right allocation of time for different subjects and activities by giving proper weightage according to needs. iv) It ensures proper distribution of work among teachers. v) It indicates habits of orderliness, steadiness, regularity and alertness among pupils and teachers. vi) It help to maintain discipline and order. 3. CONTENT OF TIME TABLE: i) Time of beginning and ending of the school days. ii) Time of beginning and ending of each period. iii) Subjects and activities assigned a specific period. iv) Days on which and time during which each subjects and each activity is to be handled. v) Name of the teacher engaging each subjects and each activity during the respective period. vi) Name of the teacher in charge of each division of each period. vii) Room in which each class meets. viii) Details regarding the recess periods. ———————————— TYPES OF TIMETABLE There are three types