國立屏東大學 資訊工程學系

Real-Time Operating Systems 即時作業系統

課程資訊

- **上課時間：** Wednesday 13:30-16:30
- **上課教室：** 二館M2413 CSIE Seminar Room
- 從9/6日至12/20日，每週上課3小時，另外於10/26日及12/21日的18:00-21:00舉行期中及期末考試，總計全學期共上課54小時。

課程投影片

- 課程投影片皆為PDF檔案，請自行安裝適合的PDF檔案閱覽軟體。
- 請至課程Teams團隊(https://reurl.cc/Ojbqp7)下載
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Textbook

- Real-Time Systems, Jane W. S. Liu, ISBN: 9780130996510.

Supplementary Textbooks

- Operating System Concepts, 10th Edition, Abraham Silberscharz, Peter Baer Galvin and Greg Gagne, John Wiley & Sons, Inc., ISBN: 978-1-118-06333-0.
- Operating Systems: Three Easy Pieces, Remzi H. Arpaci-Dusseau and Andrea C. Arpaci-Dusseau
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Papers to read

- J.A. Stankovic, Misconceptions about real-time computing: a serious problem for next-generation systems, Computer, Vol. 21(10), pp. 10-19, 1998.IEEE Xplore

- C. L. Liu and James W. Layland, Scheduling Algorithms for Multiprogramming in a Hard-Real-Time Environment, Journal of the ACM (JACM), Vol. 20(1), pp. 46-61, Jan. 1973. ACM DL
- Sha, L., Rajkumar, R., & Lehoczky, J. P., Priority Inheritance Protocols: An Approach to Real-Time Synchronization. IEEE Transactions on Computers, 39(9), 1175–1185, 1990. IEEE Xplore
- Baker, T. P., Stack-based scheduling of realtime processes. Real-Time Systems, 3(1), pp. 67-99, 1991. Conference Version from IEEE Xplore

Presentation (Selected Papers)

Each student will be required to present at least one related paper from the following list:

1 11/29 林伯邑 Min-Ih Chen and Kwei-Jay Lin, Dynamic Priority Ceilings: A Concurrency Control Protocol for Real-Time Systems, Real-Time Systems, Vol. 2(4), pp.325-346, 1990.

2.12/06 黃昕彤 Jun Wu, Tei-Wei Kuo and Chih-wen Hsueh, "RCPCP: A Ceiling-Based Protocol for Single and Multiple Disks Environments," The Computer Journal, Vol. 46, No. 2, pp. 161-173, February 2003.

3.12/06 黃沂彤 Tei-Wei Kuo, Jun Wu and Hsin-Chia Hsih, "Real-Time Concurrency Control in a Multiprocessor Environment," IEEE Transactions on Parallel and Distributed Systems (TPDS), (SCI, EI), Vol. 13, No. 6, pp. 659-671, June 2002.

4. Jian-Jia Chen, Jun Wu and Chi-Sheng Shih, “Approximation Algorithm for Scheduling Real-Time Jobs with Multiple Feasible Intervals”, Journal of Real-Time Systems, (SCI,EI), Vol. 34, Issue 3, pp. 155-172, November 2006.

5.Hakan Aydin, Daniel Mosse, and Pedro Media-Alvarez, Power-Aware Scheduling for Periodic Real-Time Tasks, IEEE Transactions on Computers, Vol. 53, No. 5, pp.584-600, May 2004.

6. 11/29 吳卓俊Jun Wu, Energy Efficient Dual Execution Mode Scheduling for Real-Time Tasks with Shared Resources, International Journal of Computer Systems Science and Engineering (CSSE), Vol.31, No. 3, pp.239-253, May 2016.

7.Jun Wu, Energy-Efficient Concurrency Control for Dynamic-Priority Real-Time Tasks with Abortable Critical Sections, Computing and Informatics (CAI),Vol. 36, No. 4, pp.765-792, September 2017,

8. 12/06 高英欽 Kam-Yiu Lam and Joseph Kee-Yin Ng, A Conditional Abortable Priority Ceiling Protocol for Scheduling Mixed Real-Time Tasks, Journal of Systems Architecture, Vol. 46, pp. 573-585, 2000

9.12/06 林佳薰Jun Wu, Energy-Efficient Scheduling of Real-Time Tasks with Shared Resources, Future Generation Computer Systems (FGCS), Volume 56, pp. 179-191. March 2016.

10. 12/20 陳品瑋 Jun Wu and Jun-Xing Wu, An SRP-Based Energy-Efficient Scheduling Algorithm for Dependent Real-Time Tasks. International Journal of Embedded Systems (IJES), Vol. 6, No. 4, pp. 335-350, 2014.

11. Jun Wu and Kai-Long Ke, Energy-Efficient Real-Time Scheduling of Tasks with Abortable Critical Sections. Journal of Information Science and Engineering (JISE), Vol. 30, No. 3, pp.765-786, May 2014.

12.12/20 邱奐森 Jun Wu, IASA: An Energy-Efficient Scheduling Algorithm for Real-Time Tasks with Lock-Free Objects,International Journal of Embedded Systems (IJES), Vol. 8, No. 5/6, pp.504-518,November 2016.