

Course Code	TKEE163223													
Course Name	Techniques of Sourcing Coding													
Course Instructors	Bondhan Winduratna; I Wayan Mustika; Risanuri Hidayat;													
Course Type	Selected Elective													
Course Classification	Engineering Topics													
Credit / Contact Hour per Week	3 / 150 minutes per Week													
Course Description	This course aims to provide an understanding of information theories, the concept of source encoding based on the minimization of redundancy components and irrelevans. It also awakens and stimulates students' ability to understand standard data compression technology for images, videos and images such as JPEG, JPEG200, MJPEG, Mpeg and ITU													
Prerequisites Courses	-													
Covered Student Outcome	Fundamental and Engineering Knowledge (a) Development of Engineering Solution (b)													
Learning Outcome	<ol style="list-style-type: none"> Students are able to expect to master the basic science of source encoding, understand the concept of stadart data compression technology, able to develop or design the source encoding system as needed. And at least have a sufficient stock of science and good to take the next courses. Students are able to develop system/source coding techniques as needed 													
Topic	<ol style="list-style-type: none"> Introduction Information Theory Source Model Minimal Redudance Coding Minimal Irrelevances Coding Encoding in Time and Frequency Domain Perceptual Encoder Standard Coding Technology 													
Direct Asessment	<table border="1"> <thead> <tr> <th>Direct Asessment Plan</th> <th>Measured Learning Outcome</th> </tr> </thead> <tbody> <tr> <td>Assignment</td> <td>LO1</td> </tr> <tr> <td>Mid Term Exam</td> <td>LO1</td> </tr> <tr> <td>Final Term Exam</td> <td>LO1, LO2</td> </tr> <tr> <td></td> <td></td> </tr> <tr> <td></td> <td></td> </tr> </tbody> </table>		Direct Asessment Plan	Measured Learning Outcome	Assignment	LO1	Mid Term Exam	LO1	Final Term Exam	LO1, LO2				
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Assignment	LO1													
Mid Term Exam	LO1													
Final Term Exam	LO1, LO2													
Indirect Assesment	Questionnaire (EDOM)													
References	<ol style="list-style-type: none"> [1] Chiariglione, L., The MPEG Representation, Springer New York, 2011 [2] Gallager, R.G., Information Theory and Reliable Communication, J. Wiley and Sons, 1968 [3] Gray, R. M., Source Coding Theory, Kluwer Academic Press, 1990 [4] Max J., Quantizing for Minimum Distortion, IRE Transactions on Information Theory, Vol. IT-6, pp. 7-12, March 1960 [5] Panter, P. F., Dite, W. Quantization Distortion in Pulse Count Modulation with nonuniform Spacing of Levels, Proc. IRE, Vol. 35, pp. 44-48, 1951 [6] Shannon, C.E., A Mathematical Theory of Communication, Bell System Tech. J., Vol. 27, pp. 379-423 (Part I), pp. 623-656 (Part II), (1948), Reprinted in book form by W.Weaver, Univ. of Illinois Press, Urbana, 1949 [7] Wallace, G.K., The JPEG Still Picture Compression Standard, Comm. ACM, April 1991 [8] Watkinson, J., The MPEG Handbook MPEG-1, MPEG-2, MPEG-4g, Wiley-Interscience, 2007. 													