INSTITUT TEKNOLOGI SEPULUH NOPEMBER (ITS)
FAKULTAS TEKNOLOGI ELEKTRO DAN INFORMATIKA CERDAS
DEPARTEMEN TEKNIK ELEKTRO
Program Studi Sarjana (S1) Teknik Elektro

INSTITUT TEKNOLOGI SEPULUH NOPEMBER (ITS)
FACULTY OF INTELLIGENT ELECTRICAL & INFORMATICS TECHNOLOGY
DEPARTMENT OF ELECTRICAL ENGINEERING
Bachelor Degree Program in Electrical Engineering

1	**Nama Mata Kuliah / *Course Name***	:	Teknik Keandalan Sistem / *Reliability Systems Engineering*
2	**Kode Mata Kuliah / *Course Code***	:	EE234742
3	**Kredit / *Credits***	:	2 SKS
4	**Semester / *Semester***	:	0

Deskripsi Mata Kuliah / *Course Description*

Konsep keandalan komponen dan sisten, deskripsi fenomena kerusakan, interval penggantian dan perawatan berdasar analisiis keandalan. Sistem dengan perbaikan dan sistem dengan komponen multistate. / *The course covers the concepts of component and system reliability, descriptions of failure phenomena, replacement intervals, and maintenance based on reliability analysis. It also includes systems with repair and systems with multi-state components.*

Capaian Pembelajaran Lulusan (CPL) Yang Dibebankan Mata Kuliah / *Program Learning Outcomes Charged to The Course*

CPL 2 Mampu mengkaji dan memanfaatkan ilmu pengetahuan dan teknologi dalam rangka mengaplikasikannya pada bidang teknik elektro, serta mampu mengambil keputusan secara tepat dari hasil kerja sendiri maupun kerja kelompok dalam bentuk laporan tugas akhir atau bentuk kegiatan pembelajaran lain yang luarannya setara dengan tugas akhir melalui pemikiran logis, kritis, sistematis dan inovatif */ Able to examine and utilize knowledge and technology for the purpose of applying them in the field of electrical engineering, and making informed decisions based on individual work as well as group work in the form of final reports or other learning activities whose outcomes are equivalent to final projects, through logical, critical, systematic, and innovative thinking.*

CPL 6 Mampu mengkaji dan memanfaatkan matematika, ilmu pengetahuan alam dan teknologi serta mengidentifikasi, memformulasikan dan menyelesaikan permasalahan di bidang teknik elektro / *Able to evaluate and utilize*

mathematics, natural sciences, and technology, as well as identify, formulate, and solve problems in the field of electrical engineering.

Capaian Pembelajaran Mata Kuliah / *Course Learning Outcomes*

1. Mampu menganalisis keandalan komponen / Able to analyze component reliability.
2. Mampu menganalisis keandalan sistem / Able to analyze system reliability.
3. Mampu mendeskripsikan fenomena kerusakan komponen / *Able to describe component failure phenomena.*
4. Mampu menentukan interval penggantian dan perawatan berdasar keandalan / *Able to determine replacement and maintenance intervals based on reliability.*
5. Mampu menganalisis sistem dengan perbaikan / *Able to analyze systems with repairs.*
6. Mampu menganalisis keandalan sistem dengan komponen multistate / *Able to analyze system reliability with multistate components.*

Pokok Bahasan / *Contents*

1. Keandalan Komponen / *Component Reliability*
2. Keandalan Sistem / *System Reliability*
3. Deskripsi Fenomena Kerusakan / *Description of Failure Phenomena*
4. Penggantian dan Perawatan / *Replacement and Maintenance*
5. Sistem dengan Perbaikan / *Systems with Repair*
6. Sistem dengan Komponen Multistate / *Systems with Multistate Components*

Prasyarat / *Pre-requisite*

Proses Stokastik / *Stochastic Processes*

Pustaka / *Reference*

1. Abdullah Alkaff: Diktat Teknik Keandalan Sistem, Diktat Kuliah, TSP, JTE, 2000.
2. Lewis, E.E.: “Introduction to Reliability Engineering”, John-Willey, New York 1994 (2nd Ed.).
3. B.S. Dhillon, “Reliability, Quality, and Safety for Engineers”, CRC Press, 2005