

DESKRIPSI SINGKAT MATA KULIAH

BRIEF DESCRIPTION OF COURSE

MUH1A4-Kalkulus IA / MUH1A4-Calculus I A

Mata kuliah Kalkulus 1 ditujukan untuk memberikan pengetahuan terkait dasar-dasar kalkulus yang diperlukan dalam tingkat sarjana. Materi yang diberikan di antaranya adalah sistem bilangan real, fungsi, limit dan kekontinuan, turunan dan aplikasinya, integral dan aplikasinya, fungsi transenden, dan integral tak wajar. Dengan perkuliahan ini mahasiswa diharapkan dapat memahami konsep turunan dan integral fungsi satu variabel dan aplikasinya.

Course Calculus 1 is aimed to provide related knowledge the fundamentals of calculus are required in the undergraduate level. Materials are provided among others system of real numbers, function, limits and continuity, derivatives and its applications, integrals and its applications, function of transcendent, and improper integrals. With this course students are expected to understand the concept of derivative and integral function of one variable and its applications.

Daftar Pustaka – Bibliography

- 1) Purcell.E.J, Varberg.D, Kalkulus dan Geometri Analitis, terjemahan, Penerbit Airlangga, edisi 5, jilid 1, 2014
- 2) Stewart.J, Kalkulus, terjemahan, penerbit Airlangga, edisi 4, jilid 1, 2003
- 3) Danang Mursita, Matematika Dasar Untuk Perguruan Tinggi, Rekayasa Sains, 2006

HUH1A2 - Pendidikan Agama Islam dan Etika/ HUH1A2 - Islam Education and Ethics

Mata kuliah pendidikan agama dan etika islam merupakan mata kuliah universitas yang memiliki kompetensi dasar pemahaman bagi mahasiswa yang diharapkan mampu berfikir rasional, bersikap dewasa dan dinamis, berpandangan luas, berkomitmen kuat dan melaksanakan ajaran Islam secara utuh, serta mampu melaksanakan proses belajar sepanjang hayat untuk menjadi ilmuwan dan profesional yang berkepribadian Islami yang menjunjung tinggi nilai-nilai kemanusiaan dalam kehidupan.

The religion of Islam education and ethics is the university subject that have a basic competencies of understanding for students who are expected to rational thinking, mature and dynamic, broad-minded, strong commitment and implement the teachings of Islam as a whole, and be able to implement a lifelong learning process to be a scientists and professional personality that upholds Islamic values of humanity in life

Daftar Pustaka – Bibliography

1. Departemen Agama RI. 2005. *Al-Quran dan Terjemahannya*.
2. Direktorat Perguruan Tinggi Agama Islam Departemen Agama RI. 2004. *Materi Instruksional: Pendidikan Agama Islam di Perguruan Tinggi Umum*. Jakarta
3. Miftah Faridl. 2004. *Pokok-pokok Ajaran Islam*. Bandung: Pustaka

HUH1B2-Pendidikan Agama Kristen dan Etika/ HUH1B2-Christian Education and Ethics

Mata kuliah pendidikan agama dan etika kristen merupakan mata kuliah universitas yang menitikberatkan pada ilmu Ketuhanan dan etika kristen yang meliputi konsep-konsep keilmuan mengenai 1) tritunggal, 2) manusia, 3) keselamatan, 4) iman, 5) dosa, 6) pertobatan, 7) kasih, serta 8) etika kristen yang meliputi pergaulan pra-nikah, pornografi, dan okultisme.

The religion of Christian education and ethics is the university subject that have focus on the science of Christian Divinity and ethics which cover the concepts of knowledge regarding 1) the trinity, 2) human beings, 3) safety, 4) faith, 5) sin, 6) conversion, 7) love, and 8) Christian ethics that includes pre-marital promiscuity, pornography, and occultism.

Daftar Pustaka – Bibliography

1. Alkitab, LAI.
2. Brotosudarmo, Drie S, 2008. *Pendidikan Agama Kristen Untuk Perguruan Tinggi*. Yogyakarta: ANDI.
3. Becker, Dieter, 1993. *Pedoman Dogmatika*. Jakarta: BPK Gunung Mulia.
4. Niftrik , G.C van & Boland, B.J., 1987: *Dogmatika Masa kini*. Jakarta: BPK Gunung Mulia.
5. Verkuyl, J, 1993: *Etika Kristen Bagian Umum*. Jakarta: BPK Gunung Mulia.
6. Darmaputra, Eka, 1987: *Etika Sederhana Untuk Semua*. Jakarta: BPK Gunung Mulia.
7. Marx, Dorothy I. *Itu 'Kan Boleh?*. Bandung: Kalam Hidup.
8. Yudho, Bambang, 2006: *How To Overcome Occultism?*. Yogyakarta: ANDI.
9. Hawkins, Craig S, 2004: *Seluk Beluk Sihir*. Yogyakarta: ANDI.

HUH1C2-Pendidikan Agama Katolik dan Etika/ HUH1C2-Catholic Education and Ethics

Mata kuliah pendidikan agama dan etika katolik merupakan mata kuliah universitas yang diharapkan mampu membentuk mahasiswa yang beriman kepada Allah menurut pola hidup Yesus Kristus dengan senantiasa mempertanggungjawabkan imannya dalam hidup menggereja dan memasyarakat. Mata kuliah ini secara garis besar meliputi pemahaman-pemahaman mengenai manusia, agama, Yesus, dan gereja.

The religion of catholic education and ethics is the university subject that is expected to form the students who believe in Allah according to the lifestyle of Jesus Christ by continuing account for his faith in life of the Church and socialize. This subject is primarily based on the understanding of human, religion, Jesus, and the church.

Daftar Pustaka – Bibliography

Buku Utama

1. Alkitab Deuterokanonika, Lembaga Biblika Indonesia, Ende, Flores, NTT, 2001
2. Paus Yohanes Paulus II. 2007: *Katekismus Gereja Katolik (KGK)*. Ende: Penerbit Nusa Indah
3. Paus Benediktus XVI. 2009: *Kompendium Katekismus Gereja Katolik*. Yogyakarta: Kanisius
4. Tim Komkep KWI. 2012: *YouCat (Youth Cathecism Katakese Orang Muda)*.Yogyakarta: Kanisius
5. DokPen KWI. *Dokumen Ajaran Sosial Gereja*.Yogyakarta:Kanisius

Buku Pendukung

6. Konferensi Waligereja Indonesia (KWI), 1997: *Iman Katolik: Buku Informasi dan Referensi*. Yogyakarta: Kanisius
7. Mgr. Ign. Suharyo. 2009: *Catholic Way*.Yogyakarta:Kanisius
8. Ign. Ismartono, SJ. 1993: *Pendidikan Agama Katolik*. Jakarta:Obor
9. Niko Syukur Dister, OFM. 1987: *Kristologi Sebuah Sketsa*.Yogyakarta: Kanisius
10. Martasudjita, E., Pr. 2003: *Sakramen-sakramen Gereja, Tinjauan Teologis, Liturgis dan Pastoral*. Yogyakarta: Kanisius
11. *Kristologi Sebuah Sketsa (Niko Syukur Dister, OFM)*, Yogyakarta, 1987

HUH1D2-Pendidikan Agama Hindu dan Etika/ HUH1D2-Hindu Education and Ethics

Mata kuliah pendidikan agama dan etika hindu merupakan mata kuliah universitas yang mendorong mahasiswa untuk mampu menunjukkan sikap religius, kemanusiaan dan sosial,

serta takwa kepada Tuhan Yang Maha Esa melalui pembelajaran berbagai kajian yang meliputi 1) ilmu pengetahuan, filsafat, dan agama, 2) etos kerja dalam hindu, 3) Weda sabda suci Tuhan sumber ajaran hindu, 4) Teologi Hindu, 5) catur purusa artha dan catur asrama, 6) Sosiologi hindu, 7) sumber dan dasar-dasar etika hindu, 8) yajna dan bhakti, serta 9) kepemimpinan hindu.

The religion of Hindu education and ethics is the university subject that encourage students to be able to demonstrate an attitude of religious, humanitarian, social, and piety to God Almighty through various learning studies include 1) science, philosophy, and religion, 2) work ethic in hindu, 3) Weda the holy God words of the teachings of Hindu, 4) the theology of Hindu, 5) catur purusa artha and catur asrama, 6) The Sociology of hindu, 7) sources and foundations of Hindu's ethics, 8) yajna and bhakti, and 9) leadership of Hindu.

Daftar Pustaka – Bibliography

Buku Utama:

1. I Gusti Made Ngurah, Drs, dkk, 2012. *Pendidikan Agama Hindu Untuk Perguruan Tinggi*. Surabaya: Paramitha.
2. Gelgel Prof. DR. I Putu, SH, M.Hum, Suma I Made, SH, M.Pd, Surapati I Nengah Drs, SH, MH, dkk, 2009. *Hukum Hindu*, Jakarta, Direktorat Jendral Bimbingan Masyarakat Hindu Departemen Agama RI.
3. Pudja G, SH, MA, 2012, *Bhagavad Gītā*, Surabaya, Paramita.
4. Pudja G, MA, Sudharta Tjokorda Rai, MA, 2012. *Manawa Dharma Sastra (Manu Dharmacastra) atau Manu Smrti Compedium Hukum Hindu*, Surabaya: Paramita.
5. Titib, DR. I Made, 2010. *Teologi dan Simbul-simbul Dalam Agama Hindu*, Surabaya: Paramita.
6. Tititb I Made, DR, 2011: *Weda Sabda Suci Pedoman Praktis Kehidupan*. Surabaya: Paramita.

Buku Penunjang :

7. Triguna, Yuda IBG, MS, Prof. DR, 2011. *Himpunan Dharma Wacana & Dharma Tula*. Jakarta: Direktorat Jendral Bimas Hindu.
8. UNHI, 2011. *Yoga Marga Rahayu*, Denpasar: UNHI.
9. Sudharta, Tjok Rai. MA, dan Punia Atmaja Ida Bagus Oka, Drs, 2010. *UPADESA Tentang Ajaran-ajaran Agama Hindu*, Surabaya: Paramita.
10. Sudharta Tjok Rai, 2010. *Kumpulan Sloka Sloka Suci Weda*, Denpasar: Widya Dharma.
11. Direktorat Jendral Bimbingan Masyarakat Hindu Kementerian Agama RI. 2012. *Materi Pokok Wariga*, Modul 1-6, Jakarta.
12. Pudja G, MA, Sudharta Tjokorda Rai, MA, 2010. *Manawa Dharma Sastra (Manu Dharmacastra) atau Manu Smrti Compedium Hukum Hindu*, Surabaya: Paramita.

HUH1E2-Pendidikan Agama Budha dan Etika/ HUH1E2-Buddha Education and Ethics

Mata kuliah pendidikan agama dan etika budha merupakan mata kuliah universitas yang memotivasi mahasiswa dengan pemahaman dalam berketuhanan Yang Maha Esa dengan memahami berbagai keilmuan budha yang meliputi 1) teologi Ketuhanan Yang Maha Esa, 2) ilmu mengenai manusia, 3) Agama, ilmu pengetahuan, teknologi, dan seni, 4) Kerukunan antar umat beragama, serta 5) Agama dalam kehidupan politik dan hukum

The religion of Buddha education and ethics is the university subject that motivate the students with an understanding of the God Almighty to understand the science of Buddha which include 1) theology on God, 2) the science of man, 3) Religion, science, technology, and the arts, 4) religious harmony, and 5) the religion in life of political and law.

Daftar Pustaka – BibliographyBuku Utama

1. Mulyadi Wahyono, SH. 2002. *Pokok-Pokok Dasar Agama Buddha*. Jakarta
2. Tim Penyusun. 2003. *Materi Kuliah Sejarah Perkembangan Agama Buddha*. Jakarta: CV. Dewi Kayana Abadi
3. Abhidhammatthasangaha, Penyusun Pandit Jinaratana Kaharudin. Cetakan Pertama Tahun 2005.

Buku Pendukung

4. Kemenag Bimas Buddha Jabar. 2011. Dhammapada Sabda-Sabda Buddha Gotama,
5. Dhammapada Atthakatha, Pustaka Narada Jakarta 2007
6. Itivuttaka, Kitab Suci Agama Buddha, di terbitkan oleh Lembaga Anagarini Indonesia Tahun 2007
7. Riwayat Buddha Gotama, Penerbit Lembaga Pengkajian Dan Pengembangan Keagamaan Buddha Indonesia, Tahun 2010
8. Kapita selekta Agama Buddha, Tim Penyusun Penerbit CV.Dewi Kayana Abadi. Jakarta 2003
9. Agama Buddha dan Ilmu Pengetahuan, DR.Buddhadasa P. Kirthisinghe, Tahun 2004

HUH1F2-Pendidikan Agama Khong Hu Cu dan Etika/HUH1F2-Kong Hu Cu *Religion and Ethics*

Materi ini mencakup urgensi agama dalam kehidupan sehari-hari dengan sikap yang benar, pemahaman terhadap sumber hukum Kong Hu Cu, mengetahui sejarah Kong Hu Cu, mampu menjelaskan Jalan Suci yang dibawakan Ajaran Besar (Thai Hak), mampu menjelaskan tentang meneliti hakekat tiap perkara, mengetahui peran Kong Hu Cu dalam pengembangan sains dan teknologi.

The course covers the urgency of a religion in right daily life, sources of Kong Hu Cu's rules, history of Kong Hu Cu, Sacred Way by Thai Hak, essence of every case, roles of Kong Hu Cu in science and technology development.

Daftar Pustaka – Bibliography :

1. Kitab Sishu (2012). Kitab Suci Agama Konghucu. Surakarta: Majelis Tinggi Agama Konghucu Indonesia (MATAKIN).
2. (2011). Keputusan Bersama Menteri Agama, Jaksa Agung, dan Menteri Dalam Negeri Republik Indonesia. Jakarta: Menteri Dalam Negeri.
3. (1975). Tata Agama Dan Tata Laksana Upacara Agama Khonghucu. Surakarta: MATAKIN.
4. Negoro, T.K Beng Setio (2005). Rahasia Kehidupan Jilid I. Bandung: Karya Bengras.

FUH1A3 -FISIKA I A / FUH1A3 - Physics I A

Setelah mengikuti mata kuliah ini mahasiswa dapat memahami konsep mekanika yang meliputi kinematika, dinamika dan usaha-energi serta konsep gelombang dan sifat-sifatnya sebagai dasar pengetahuan untuk mata kuliah tingkat lanjut maupun sebagai dasar sebagai seorang engineer.

After following this course, students can understand the concepts of mechanics includes kinematics, dynamics and energy as well as the concept of business-wave and its properties as the basic knowledge for advanced courses as well as basic as an engineer.

Daftar Pustaka – Bibliography :

1. Halliday, D., Resnick, R., Walker, J. (2010). *Fisika Dasar* (terjemahan), Edisi 7 Jilid 1, Erlangga
2. Sutrisno, 1981, Seri Fisika Dasar, Penerbit ITB, Bandung.

FUG1B1-Praktikum Fisika 1 A / FUG1B1- Physics Lab works 2 A

Mata Kuliah ini merupakan kegiatan praktikum di Laboratorium untuk mendukung dan melengkapi pengetahuan teori yang diberikan pada Mata Kuliah Fisika I. Praktikum pada Mata Kuliah ini berisi kegiatan praktikum tentang mekanika, gelombang, dan pemakaian osiloskop.

Course is a practical activities in the Laboratory to support and complement the theoretical knowledge given in Practical Course in Physics I. Course contains practical activities of mechanics, waves, and the use of an oscilloscope.

Daftar Pustaka – Bibliography :

- [1] Resnick, R., Halliday, D., 1978, Physics, Jhon Wiley dan Sons, New York.
- [2] Sutrisno, 1981, Seri Fisika Dasar : Mekanika, Penerbit ITB, Bandung.

LUH1B2 - Bahasa Inggris / LUH1B2 - English

Mata kuliah Bahasa Inggris I (General English) merupakan mata kuliah universitas yang memiliki capaian pembelajaran bagi mahasiswa agar mampu memahami ide dan makna secara kritis dari teks dan tuturan berbahasa inggris, serta mampu menyampaikan, mengkonstruksikan dan mengkomunikasikan ide yang bermakna dalam Bahasa Inggris yang baik dan berterima.

English I (General English) is a university subject that have learning outcomes for students to be able to understand the ideas and meanings critically of text and speech to speak English, and able to deliver, construct and communicate the meaningful ideas in English which is good and thank.

Daftar Pustaka – Bibliography

1. Hofstede, G., Hostede, G.J., and Minkov, M. (2010). *Cultures and Organizations: Software of the Mind, Intercultural Cooperation and Its Importance for Survival*. New York: McGraw-Hill.
2. Jones, Leo. (2007). *Let's Talk 1-3*. New York: Cambridge University Press.
3. LeBeau, C. & Harrington, D. (2006). *Discussion: Process and Principles*. Oregon: Language Solution, Inc.
4. LeBeau, C. & Harrington, D. (2003). *Getting Ready for Speech: A Beginner Guide to Public Speaking*. Oregon: Language Solution, Inc.
5. McCharthy, M, & O'Dell F. (2013). *Academic Vocabulary in Use*. 8th Edition. Cambridge: Cambridge University Press.
6. Singleton, J. (2008). *Writers at Work*. Cambridge: Cambridge University Press.
7. Various onlinepictures and articles.
8. Downloaded video

LUH1A2 - Bahasa Indonesia / LUH1A2 – Indonesian Language

Mahasiswa mendapatkan kesempatan berlatih menulis secara terbimbing dan mendapatkan materi ragam bahasa tulis ilmiah meliputi 1) penulisan huruf, kata, unsur serapan, dan pemakaian tanda baca, 2) pembentukan kata dan kalimat serta paragraf, 3) tata istilah dan definisi, 4) pemilihan topik, tema, judul, dan penyusunan kerangka karya ilmiah, 5) penyusunan bab pendahuluan, kajian pustaka, analisis, dan simpulan, pelengkap awal dan

pelengkap akhir, 6) konvensi karya tulis ilmiah: pengetikan, pengutipan, dan daftar pustaka, serta 7) keplagiatan.

Students get an opportunity to practice writing under guidance and receive variety materials of language scientific paper include 1) writing of letters, words, elements of absorptions and use of punctuation mark, 2) formation of words and sentences as well paragraphs, 3) terminology and definitions, 4) selection of topics, themes, titles, and drafting the framework of scientific works, 5) preparation of introduction chapter, study of literature, analysis, and conclusions, initial complementary and supplementary end, 6) the convention of scientific paper: typing, citations and bibliography, and 7) plagiarism.

Daftar Pustaka - Bibliography

1. Djuroto, Toto, Suprijadi, B. (2002). *Menulis Artikel dan Karya Ilmiah*. Bandung: Rosdakarya.
2. Alwi, Hasan (2003). *Tata Bahasa Baku Bahasa Indonesia, Edisi 3*. Jakarta: Balai Pustaka.
3. Puspendari, D. (2011). *Handout Bahasa Indonesia*. Universitas Telkom.
4. Efendi (1979). *Pedoman Penulisan Laporan*. Jakarta: Pusat Pembinaan dan Pengembangan Bahasa.
5. Widjono (2007). *Bahasa Indonesia, Mata Kuliah Pengembangan Kepribadian di Perguruan Tinggi*. Jakarta: Grasindo.

DUH1A2 - Literasi TIK / DUH1A2 - ICT Literacy

Literasi TIK membahas dan mempraktekkan kompetensi literasi TIK. Dimulai dengan membahas dasar dan komponen TIK, kemudian akan berfokus pada kompetensi literasi TIK yang meliputi analisa kebutuhan informasi untuk menyelesaikan suatu masalah. Kemudian melakukan penemuan informasi yang dibutuhkan secara efektif dan efisien dan melakukan evaluasi terhadap informasi yang dihasilkan dan proses penemuannya. Informasi kemudian akan disimpan dan dikelola. Dilanjutkan dengan proses membangun konsep baru atau membuat pemahaman baru dari informasi yang ada. Selain itu juga akan dipelajari penggunaan informasi dengan pemahaman dan mengakui budaya, etika, ekonomi, masalah hukum, dan sosial seputar penggunaan informasi.

ICT literacy discusses and practices ICT literacy competencies. It starts by discussing basic and components of ICT, then will focus on ICT literacy competencies which include the analysis of information needs to solve a problem. Then the next step searches the needed information effectively and efficiently and to evaluate the information produced and the process of discovery. The information will then be stored and managed. Continued with the process of building a new concept or create a new understanding of the information. It also will study the use of information by understanding and recognizing cultural, ethical, economic, legal, and social surrounding the use of information.

Daftar Pustaka - Bibliography

1. Information Literacy Competency Standards for Higher Education, American Library Association, 2000
2. Framework for Information Literacy for Higher Education, The Association of College & Research Libraries, 2015
3. Modul Praktikum Aplikasi Perkantoran dan Pencarian Informasi, Tim Penulis Modul Praktikum S1 Teknik Informatika, Fakultas Informatika, Universitas Telkom, 2015

4. California ICT Digital Literacy Assessments and Curriculum Framework, 2008
5. Australian and New Zealand Information Literacy Framework: principles, standards and practice, second edition, Australian and New Zealand Institute for Information Literacy, 2004
6. John L.Gordon , Creating Knowledge Maps by Exploiting Dependent Relationships , , in: Knowledge Based Systems, Vol13 (April 2000), pages 71 – 79
7. Elsevier Science ,Novak, J. D. & A. J. Cañas, The Theory Underlying Concept Maps and How to Construct and Use Them, Technical Report IHMC CmapTools 2006-01 Rev 01-2008, Florida, Institute for Human and Machine Cognition, 2008
8. Walraven, A., Brand-Gruwel, S., & Boshuizen, H.P.A. (2009). How students evaluate sources and information when searching the World Wide Web for information. Computers and Education 25 (1), 234-246

CEH1A3 - Pengenalan Sistem Komputer / CEH1A3 - Introduction to COMPUTER ENGINEERING

Mata kuliah ini membahas berbagai hal terkait dengan program studi Teknik Komputer. Pengenalan diri dan lingkungan prodi mengawali kuliah ini. Disusul dengan materi terkait dengan Sistem Komputer, yaitu Perangkat Keras, perangkat Lunak, Jaringan dan Keamanan Sistem Komputer. Mahasiswa juga dibekali dengan alat bantu belajar, yaitu mind mapping, peraturan akademis, kehidupan kampus dan kerja sama dalam kelompok. Setengah semester akhir, mahasiswa akan belajar tentang pembuatan program sederhana dengan bahasa C.

This course contains the aspects of Computer Engineering Program. Students will be taught to know their self and the academic environment. Then, they will learn about Hardware, Software, the Network and the Computer System Security as the basic aspect of Computer System. Besides, they will learn tools for study such as mind mapping, academic rules, campus living and work in workgroup. In the second half on the semester, students will learn how to build computer programs in C language.

Daftar Pustaka - Bibliography

- [1] Mladen Berekovic, Nikitas Dimopoulos, Stephen Wong, Embedded Computer Systems: Architectures, Modeling, and Simulation: 8th International Workshop, SAMOS 2008, Samos, Greece, July 21-24, 2008, Proceedings (Lecture Notes in Computer Science), 2008.
- [2] M. Morris Mano, Computer System Architecture, Third Edition, 2000
- [3] Iliano Cervesato, Advances in Computer Science - ASIAN Computer and Network Security: Proceedings 12th Asian Computing Science Conference, Doha, Qatar, December 9-11, 2007, ... (Lecture Notes in Computer Science)
- [4] Buku Pedoman Pendidikan Telkom University, 2015
- [5] Computer Basic Tutorial, www.comtechdoc.org
- [6] Tutorialspoint, Learn C Programming, 2014.

MUH1D4 - Kalkulus 2 A / MUH1D4 - Calculus 2 A

Mahasiswa memahami dan menguasai konsep turunan dan integral fungsi peubah banyak. Selanjutnya mahasiswa diharapkan memiliki ketrampilan menerapkan konsep-konsep dasar tersebut sebagai alat bantu pada mata kuliah selanjutnya. Adapun materi perkuliahannya

adalah barisan dan deret, persamaan diferensial biasa, fungsi vektor, fungsi dua peubah, integral lipat dua dan tiga, integral garis dan integral permukaan.

Students understand and control the concepts of derivative and integral function of lots variables. Furthermore, students are expected to have skills to apply basic concepts such as tools in the course later. The material of lecturing is the row and progression, ordinary differential equations, vector function, function of two variables, integral double and triple, line integrals and surface integrals.

Daftar Pustaka - Bibliography:

- [1] Purcell.E.J, Varberg.D, Kalkulus dan Geometri Analitis, terjemahan, Penerbit Airlangga, edisi 5, jilid 1, 2014
- [2] Stewart.J, Kalkulus, terjemahan, penerbit Airlangga, edisi 4, jilid 1, 2003
- [3] Danang Mursita, Matematika Dasar Untuk Perguruan Tinggi, Rekayasa Sains, 2006

FUH1D3 - Fisika 2 A / Physics 2 A

Tujuan matakuliah ini adalah memberikan pengenalan dan pemahaman kepada mahasiswa tentang konsep dasar medan listrik dan medan magnet, sehingga memudahkan mahasiswa untuk memahami prinsip listrik dan magnet dalam engineering.

The purpose of this course is to provide recognition and understanding to students about basic concepts of electric field and magnetic field, making it easier for students to understand the principles of electricity and magnetism in engineering.

Daftar Pustaka - Bibliography:

- [1] Halliday, D., Resnick, R., Walker, J. (2010). *Fisika Dasar* (terjemahan), Edisi 7 Jilid 2, Erlangga
- [2] Giancoli, Douglas C., 1998, Fisika, Jilid 2, Edisi kelima, terjemahan Yuhilza Hanum, Penerbit Erlangga, Jakarta.
- [3] Sutrisno, Tan Ik Gie, 1979, Fisika Dasar: Listrik Magnet dan Termofisika, Penerbit ITB, Bandung.

FUH1E1 - Praktikum Fisika 2 A / Physics Lab works 2 A

Setelah mengikuti mata kuliah ini mahasiswa dapat memahami konsep pengukuran besaran fisis, pengambilan data, analisis dan pengolahan data dari system percobaan fisika sederhana yang berlandaskan pada fenomena fisis listrik dan magnet.

After following this course, students can understand the concept of measuring the amount of physical, data acquisition, data analysis and processing from the system of simple physics lab works based on the physical phenomena of electricity and magnetism.

Daftar Pustaka - Bibliography

- [1] Modul Praktikum Fisika II A

KUH1A3 - Kimia /KUH1A3 - Chemistry

Mata kuliah ini memberikan pemahaman mengenai 1) gambaran ilmu kimia untuk bidang teknik telekomunikasi, 2) pengertian dasar mengenai hukum-hukum dasar kimia, serta membangun pengertian, 3) hubungan energy dengan reaksi kimia, 4) konsep-konsep dasar

bahasan mengenai atom dan sifat keberkalaannya, 5) konsep-konsep dasar bahasan mengenai molekul serta pembentukannya, 6) konsep dasar mengenai gas dan system Kristal, 7) pengertian mengenai interaksi senyawa-senyawa terlarut baik bersifat elektrolit dan nonelektrolit.

This course provides an understanding of 1) the image of chemistry for technical fields of telecommunications, 2) a basic understanding of the fundamental laws of chemistry, and to build understanding, 3) the relationship of energy by chemical reactions, 4) the basic concepts discussion of the atom and the nature keberkalaannya, 5) the basic concepts as well as a discussion of the molecular formation, 6) basic concepts of gas and system Kristal, 7) an understanding of the interaction of both compounds are dissolved electrolytes and Non-electrolytes.

Daftar Pustaka - Bibliography

1. Karen C Timberlake, William Timberlake, "Basic Chemsitry", 4th edition, Pearson, 2014
2. Chang R, Chemistry, 10th Edition, McGrawHill, Boston, 2010
3. James E. Brady, Neil D. Jespersen and A. Hyslop, Chemistry 7th ed, John Willey&Sons, New York, 2014
4. Ahmad, H. , Penuntun Belajar Kimia Dasar, Citra Aditya Bakti, Bandung, 2001
5. Ebing, D.D., General Chemistry, Nine edition, Houghton Mifflin Company, Boston, 2009

FEH1H3 - Algoritma dan Pemrograman B / FEH1H3 - Algorithm and Programming B

Mata kuliah ini membahas pentingnya algoritma dalam kehidupan nyata, khususnya dalam pembuatan program. Materi akan dimuai dengan tipe dasar, dilanjutkan dengan konsep variabel. Selanjutnya, dikenalkan tipe bentukan dan enumerasi. Pembuatan algortima dalam notasi algortima juga diajarkan, dan disusulkan dengan analisa kasus dan pengulangan. Konsep array dan penggunaan array juga penting untuk dikuasai, dan diakhiri dengan konsep file dan pemanfaatannya.

This course contains the implementation of algorithm in real life, especially in programming world. Starting with basic tipe, sstudents will learn the concept of variable. Then, they continue to learn new types like enumeration and record, and array types. Basic algorithm medtods such as case analysis and looping will be learned, and students will build simple algorithm. In the end, file concept and file operation will be discussed.

Daftar Pustaka-Bibliography :

1. Inge, Diktat Prosedural Algoritma dan pemrograman, Jurusan Teknik Informastika - ITB, 2007
2. Tutorialspoint, Learn C Progamming, 2014.
3. Luciano Maria Barone, Enzo Marinari, "Scientific Programming : C Languange, Algorithms and Model in Science", World Scientific, 2013
4. Alexander Shen, "Algorithms and Programming : Problem and Solution", Springer, 2010
5. Dan Gookin, " C For Dummies", 2nd edition, Jhon Wiley, 2004

FEH111 - Praktikum Algoritma dan Pemrograman B / FEH111 - Algorithm and Programming Lab Works B

Memberikan pengetahuan secara mendalam mengenai dasar-dasar pemrograman, mempelajari pembuatan program yang menggunakan array, struktur pengulangan, data dan record, serta searching dan sorting.

Providing in-depth knowledge about the basics of programming, learned how to make programs that use arrays, loop structure, data and records, as well as searching and sorting.

Daftar Pustaka-Bibliography :

- [1] Inge, Diktat Prosedural Algoritma dan pemrograman, Jurusan Teknik Informastika - ITB, 2007
- [2] Tutorialspoint, Learn C Progamming, 2014

LUH2C2 - Bahasa Inggris II/ LUH2C2 - English II

Mempelajari 'an expository composition' dengan 'basic content' yang formal, jelas namun natural sehingga mudah dipahami oleh pembaca dan sebagai dasar untuk essay ilmiah sederhana mulai dari latihan sentence patterns secara gramatikal, paragraph organization, relating ideas, unity, coherence sampai dengan reference, substitution, conjunction atau lexical manipulation, interpreting data, comparison, revising and editing.

This English course introduces students to an Expository composition. Students are guided to write formal and clear expository texts so that these texts are easily understood by the readers. As the basis for writing simple scientific essays, students are guided to write sentence patterns with appropriate grammar, relate ideas, organize paragraphs and to write unity paragraph using appropriate coherence to the reference, substitution, conjunction or lexical manipulation. The students are also encouraged to write data interpretation, write comparison texts, editing and revising.

Daftar Pustaka - Bibliography

1. Jones, L. (2013). *Let's Talk 1*. 28th Edition. Cambridge: Cambridge University Press
2. Redman, S. (2012). *English Vocabulary in Use: Pre-Intermediate and Intermediate*. Cambridge: Cambridge University Press
3. LeBeau C. & Harrington, D. (2006). *Discussion: Process and Principles*. Oregon: Language Solution, Inc.
4. Hofstede, G., Hostede, G.J., and Minkov, M. (2010). *Cultures and Organizations: Software of the Mind, Intercultural Cooperation and Its Importance for Survival*. New York: McGraw-Hill.

FEH1J2- Konsep Pengembangan Sains dan Teknologi A / FEH1J2 -Concept of Science and Technology Development A

Pengantar singkat tentang filsafat sains. Berfikir kritis, berfikir ilmiah dan metoda ilmiah. Perkembangan sains dalam tinjauan contoh dan sejarah. Konsep teknologi dan perkembangannya. Masalah etika dan teknologi.

A brief introduction about the philosophy of science. Critical thinking, scientific thinking and the scientific method. The progress of science in the review sample and history. The concept of technology and development. Ethical issues and technology.

Daftar Pustaka – Bibliography

1. Tracy Howell and Gerry Kemp, "Critical Thinking : Concise Guide", 4th edition, 2014, RoutledgeTaylor and Francis Group
2. James Trefil, Robert Hazen, "The Sciences : An Integrated Approach, 6th edition, Jhon Wiley, 2010
3. Barry Gower, "Scientific Method : An historical and Philosophical Introduction", RoutledgeTaylor and Francis Group, 1997

MUH2F3 -Probabilitas dan Statistika A / MUH2F3 - Probability and Statistics

MK ini membekali mahasiswa kompetensi untuk memahami konsep probabilitas dan besaran statistik: konsep probabilitas yaitu sampel, probabilitas, percobaan, teori himpunan, probabilitas bersyarat dan teorema bayes, kejadian saling bebas, random variables, pdf dan cdf, ekspektasi, dan varians, distribusi spesial: uniform, gaussian, binomial, poisson, erlang. pengantar random proses dan pemodelan random proses (state diagram) pengantar ke statistik dan estimasi distribusi

This course equips students with competencies to understand the concepts of probability and the values in statistics covering the concept of probability namely samples, probability, experiments, set theory, conditional probability and Bayes theorem, independent events, random variables, the pdf and cdf, expectation, and variance. In addition, it discusses special distributions namely uniform, Gaussian, Binomial, Poisson, Erlang, introduction to random processes and random modeling processes (state diagram) to introduce the students to statistics and distribution estimation.

Daftar Pustaka – Bibliography

1. Douglas C Montgomery, George C Runger, "Applied Statistics and Probability for Engineers", 6th Internal Student Version, John Wiley, 2014
2. JL Hodges Jr, E.L Lehmann, " Basic Concepts of Probability and Statistics", Classic in Applied Mathematics, 2004
3. T.T Song, "Fundamentals of Probability and Statistics For Engineers, 2nd Jhon Wiley, 2004

CEH2C3 - Logika Matematika B / CEH2C3 - Mathematics Logics B

Logika matematika merupakan mata kuliah keilmuan dan keahlian yang perlu dikuasai dengan baik oleh mahasiswa meliputi arti penting logika, teori himpunan, fungsi himpunan pada logika, kalkulus proposisi, menentukan nilai kebenaran berdasarkan interpretasi yang diberikan, kalkulus predikat-kalimat kuantor, inferensi (metode penarikan kesimpulan), validitas pembuktian argumen, Sistem Bilangan dan konversi bilangan, konsep Aljabar Boolean dan aksiomanya, dualitas dan hukum-hukum Aljabar Boolean, fungsi Boolean dan bentuk fungsi-fungsi standar dan kanonik, konversi SOP dan POS, dan bentuk baku fungsi Boolean, Aplikasi Aljabar Boolean, metode peta karnaugh

The logic of mathematics is a subject of knowledge and skills that need to be controlled well by students include the importance of logic, set theory, function set on logic, calculus proposition, determine the truth value based on the interpretation given, the predicate calculus sentences kuantor, inference (methods conclusion), the validity of proof argument, number Systems and the conversion of numbers, the concept of Boolean algebra and axioms, duality and the laws of Boolean algebra, Boolean functions and forms of standard functions

and canonical, conversion SOP and POS, and its raw form Boolean functions, applications of Algebra boolean, the method of Karnaugh maps

Daftar Pustaka – Bibliography

- [1] Kenneth Rosen, 2011, Discrete Mathematics and Its Applications, 7th Edition, McGraw-Hill Education
- [2] Tindler, Richard F. (1991). *Digital Engineering Design A Modern Approach*. Prentice-Hall International, Inc.
- [3] Korfhage, Robert R., 1966, Logic and Algorithms with Applications to the Computer and Information Sciences, Jhon Wiley dan Sons, New York.
- [4] Zohar Manna and Richard W., 1985, The Logical Basis for Computer Programming, Volume 1 Deductive Reasoning, Addison Wesley.
- [5] Rinaldi Munir, 2010, Matematika Diskrit, Penerbit Informatika

FEH2J3 - Matematika Diskrit B / FEH2J3-Discrete Mathematics B

Mata kuliah ini memberikan pengetahuan tentang konsep teori himpunan, relasi dan fungsi, dan kombinatorial. Mata kuliah ini juga memberikan keahlian mahasiswa tentang kemampuan menyelesaikan aplikasi graf dan pohon, serta menghitung kompleksitas algoritma

This course provides knowledge about the concepts of set theory, relations and functions, and combinatorial. This course also gives students skills about the ability to complete the application graphs and trees, as well as calculating algorithm complexity

Daftar Pustaka – Bibliography

1. Kenneth Rosen, 2011, Discrete Mathematics and Its Applications, 7th Edition, McGraw-Hill Education
2. Richard Johnsonbaugh, 2015, Discrete Mathematics, 8th Edition, Pearson
3. Susanna S. Epp, 2010, Discrete Mathematics with Applications, 4th Edition, Brooks Cole
4. Seymour Lipschutz, 1992, 2000 Solved Problems in Discrete Mathematics, McGraw-Hill Education
5. Rinaldi Munir, 2010, Matematika Diskrit, Penerbit Informatika

CEH2B4- Rangkaian Listrik / CEH2B4 - Electric Circuits

Memberikan pengertian tentang konsep Rangkaian Listrik, mempelajari Hukum Ohm, Hukum Kirchoff, dan aplikasinya baik dalam rangkaian DC maupun ac dengan menggunakan metode analisis dan teorema termasuk didalamnya membahas komponen pasif R, L, C dan komponen aktif sumber tegangan dan arus berikut dibahas nilai besaran-besaran rangkaian listrik, membahas daya pada komponen RLC, frekuensi kompleks dan fungsi transfer berikut aplikasi pada respon frekuensi dan kutub empat, dan kopling magnetik.

Providing an understanding of the concept of Electric Circuits, learn Ohm's Law, Kirchoff's Law, and its application in both the DC and AC circuits using analytical methods and discuss theorems including passive components R, L, C and active components of the source voltage and current values are discussed below besaran- the amount of electrical circuits, discusses the power on RLC components, and the complex frequency transfer function following the application of frequency response and four poles, and magnetic coupling.

Daftar Pustaka – Bibliography

1. Charles K Alexander, Matthew N.O. Sadiku, "Fundamentals of Electric Circuits", 5th edition, Mc Graw Hill, 2013.
2. Johnson, David. E, Electric Circuit Analysis, Prentice Hall, London, 2002.
3. Dorf, Richard, James A. Svoboda, Introduction to Electric Circuit, John Wiley, Sons, 2006
4. Ramdhani, Mohamad, Rangkaian Listrik, Erlangga, Jakarta, 2008
5. Hyat, William, Rangkaian Listrik, Erlangga, Jakarta, 1991
6. Budiono, Mismail, Rangkaian Listrik, ITB, Bandung, 1997
7. Edminister, J.A., Teori dan Soal-soal Rangkaian Listrik, Erlangga, Jakarta, 1990

CEH2A3-Pemrograman Berorientasi Objek B/CEH2A3-Object Oriented Programming B

Membahas tentang Kondisi dan Perulangan, Variable dan Konstanta, Dasar I/O, Encapsulation, Konstruktor, inheritance, Polymorphism, Penanganan Kesalahan, String dan Bilangan, Multithreading, GUI (Graphical User Interface), Pengembangan Sistem Software, Model dan Pemodelan, Model Orientasi Data, Objek dan Class, OODLC (The Object-Oriented Development Life Cycle), Kebutuhan Model, UML (Unified Modeling Language), Diagram UML, Use Case Diagram, Relasi, Generalisasi, Activity Diagram, Symbol - symbol, Swimlanes, Sequence Diagram, Collaboration Diagram, Class Diagram, Statechart Diagram, dan Component dan Deployment Diagram

Discussing about the condition and recurrence, Variable and Constant, Basic I / O, encapsulation, constructors, inheritance, polymorphism, Error Handling, Strings and Numbers, Multithreading, GUI (Graphical User Interface), Development Systems Software, Model and Modeling, Model Orientation Data Object and Class, OODLC (The Object-Oriented Development Life Cycle), Needs Model, UML (Unified Modeling Language), Diagram UML, Use Case Diagram, Relation, Generalization, Activity Diagram, Symbol - symbol, Swimlanes, Sequence Diagram, collaboration diagram, Class diagram, Statechart diagrams, and Component and deployment diagrams

Daftar Pustaka – Bibliography:

- [1] An Introduction to Object Oriented Programming with JAVA (third edition), C. Thomas Wu, McGrawHill International, 2008
- [2] Simon Bennet, Steve McRobb, Ray Farmer, Object Oriented Systems Analysis and Design Using UML 2nd, McGraw Hill, 2002.
- [3] Java™ How to Program, Sixth Edition By H. M. Deitel - Deitel & Associates, Inc., P. J. Deitel - Deitel & Associates, Inc. Publisher : Prentice Hall, 2004
- [4] Learning Java™, 2nd Edition By Jonathan Knudsen, Pat Niemeyer, 2002
- [5] Beginning Java Object: From concept to Code, Second Edition. Jacquie Barker. 2005
- [6] Graham, I. Object Oriented Methods. New York : Addison Wesley Inc., 1991.
- [7] Grady Booch, James Rumbaugh and Ivar Jacobson, The UML User's Guide, 1st Edition, Addison and Wesley, 1998.

HUH1G3 - Pancasila dan Kewarganegaraan / HUH1G3 - Pancasila and Civics

Mata kuliah pancasila dan kewarganegaraan merupakan mata kuliah universitas yang menjelaskan hal-hal yang berkaitan dengan konsep aktualisasi dari nilai-nilai Pancasila serta kewarganegaraan Indonesia yang secara garis besar meliputi pemahaman mengenai 1) pengembangan kepribadian, 2) ideologi berbangsa dan bernegara, 3) hak asasi manusia, 4) hak

dan kewajiban warga negara, 5) aktualisasi demokrasi berkeadaban, 6) analisis penegakkan hukum dan the rules of law, serta 7) berbangsa dan bernegara

Pancasila and citizenship is the university subject that explain things that are related to the actualization concept values of Pancasila and Indonesia citizenship which is primarily based on understanding of 1) the development of personality, 2) the ideology of the state and nation, 3) human rights, 4) the rights and obligations of citizens, 5) actualization of civilized democracy, 6) analysis of law enforcement and the rule of law, and 7) the state and nation

Daftar Pustaka-Bibliography :

1. Arwiyah, Yahya.M dkk.2011. *Pendidikan Karakter* di Perguruan Tinggi. Bandung: YPT Press
2. Arwiyah, Yahya.M dkk.2014. *Civic Education di Indonesia*. Bandung: Alfabeta
3. Arwiyah, Yahya.M.2013. *Regulasi Kewarganegaraan Indonesia*. Bandung: Alfabeta
4. Budimansyah, D. dan Winataputra,S,U.(2007). *Civic education konteks ,landasan, bahan ajar, dan kultur kelas*. Bandung : Program Studi Pendidikan Kewarganegaraan Sekolah Pascasarjana Universitas Pendidikan Indonesia.
5. Somantri, M.N. (2001). *Menggagas Pembaharuan Pendidikan IPS*, Bandung. Penerbit PT Remaja Rosdakarya.
6. Undang-undang Dasar 1945 pasca amandemen
7. Instrumen-instrumen HAM Nasional dan Internasional (PBB)
8. Kaelan. (1990). *Pancasila*. Yogyakarta : Panorama
9. Muchtar, K.(1983). *Hukum Laut Internasional*, Bandung : PT Bina Cipta
10. Notonagoro .(1980). *Beberapa hal Mengenai Falsafah Pancasila*. Jakarta : Pancuran Tujuh
11. Tim Dikti & Lemhannas (2003), *Pendidikan Kewarganegaraan*, Jakarta: PT. Gramedia
12. Undang-Undang No.20 Tahun 2003 Tentang Sistem Pendidikan Nasional
13. Undang-Undang No. 2 Tahun 2002 Tentang POLRI
14. Undang-Undang No.3 Tahun 2002 Tentang Pertahanan Negara.
15. Undang-Undang No. 22 Tahun 1999 jo. UU No.32 Tahun 2004 Tentang Pemerintahan Daerah
16. Branson. S. Margaret dkk. (1998). *"Belajar "Civic Education" dari Amerika"*, Yogyakarta : diterbitkan atas kerjasama : Lembaga Kajian Islam dan Sosial (LKIS) dan The Asia Foundation (TAF).
17. Cogan, J. J dan Derricott, R.,(1998). *Citizenship for the 21st century : An International perspective on Education*. London : Kogan Page

CEH2D1 - Praktikum CE 1 (RL, PBO B) / CEH2D1-COMPUTER ENGINEERING Lab Works I (RLD, PBO B)

Terdiri dari dua Mata Praktikum yang masing-masing memberikan enam modul Praktikum, yaitu: Rangkaian Listrik, memberikan modul-modul dengan bantuan simulasi PSpice atau pengukuran langsung: pengenalan alat-alat praktikum berupa osiloskop, generator fungsi, multimeter, RLC meter dan komponen R, L, C; pengukuran terhadap besaran tegangan dan arus dengan metode substitusi, superposisi, resiprositas; Rangkaian Thevenin-Norton baik sumber DC maupun AC; Pengukuran: rangkaian resonansi; filter sederhana; kopling magnetik; gejala transient. Pemrograman Berbasis Objek, memberikan modul-modul yang berisikan pemahaman mendalam mengenai konsep OOP dan bahasa pemrograman yang sudah menggunakan OOP sebagai penunjang

Practicum consists of two courses, each of which provides Practicum six modules, namely: Electrical circuit, giving the modules with the aid of PSpice simulation or direct measurement: the introduction of practical tools such as oscilloscopes, function generators, multimeters, RLC meters and components R, L, C; measurement of the amount of voltage and current with the method of substitution, superposition, reciprocity; Thevenin-Norton circuit either DC or AC source; Measurements: resonant circuit; simple filter; magnetic coupling; transient symptoms. Object-Based Programming, provides modules that contain deep understanding of OOP concepts and programming languages that are already using OOP as supporting

Daftar Pustaka-Bibliography :

- [1] Modul Praktikum Rangkaian Listrik
- [2] Modul Praktikum Pemrograman Berorientasi Objek B

CEH2E3-Dasar Perancangan Perangkat Lunak/ CEH2E3 - BASIC SOFTWARE ENGINEERING

Pengertian dan sejarah rekayasa perangkat lunak, paradigma dan metodologi yang terdapat dalam rekayasa perangkat lunak, analisis dan desain terstruktur beserta alat bantu pemodelannya (Data Flow Diagram, Entity Relationship Diagram, State Transition Diagram, Structure Chart, Kamus Data, Spesifikasi Proses, dan sebagainya.), Pengantar Perancangan perangkat lunak dengan teknik berorientasi obyek, Unified Modelling Language/ UML (Use Case Diagram, Class Diagram, Diagram Sequence, Collaboration Diagram, Activity Diagram, dan sebagainya), Teknik pengujian perangkat lunak, pemeliharaan serta dokumentasi

Definition and history of software engineering, paradigms and methodologies contained in software engineering, analysis and structured design along with tools modeling (Data Flow Diagram, Entity Relationship Diagram, State Transition Diagram, Structure Chart, Data Dictionary, Specification process, and so forth.), Introduction to Design software with object-oriented techniques, Unified Modelling Language / UML (Use Case Diagram, Class Diagram, Sequence Diagram, Collaboration Diagram, Activity Diagram, etc.), Mechanical software testing, maintenance and documentation

Daftar Pustaka-Bibliography :

1. Pressman, Roger., Software Engineering: A Practitioner's Approach, 7th edition, McGraw-Hill, 2009.
2. Yourdon, E. Modern Structure Analysis, Prentice Hall Inc. 1989.
3. Sommerville, Ian., Software Engineering: (Update) (8th Edition) (International Computer Science), Pearson, 2006.
4. Bennet, Simon, etc, Object Oriented System Analysis and Design using UML, McGraw Hill., 3/e, 2005,
5. Miles, Russ, etc, Learning UML 2.0, O'Reilly Media, 1 edition, 2006

MUH1G3 - Matriks dan Ruang Vektor / MUH1G3 - Matrices and Vector Spaces

Mata kuliah ini memberikan pengetahuan tentang matriks, determinan matriks, ruang vektor, ruang hasil kali dalam, orthogonal, orthonormal, kernel dan jangkauan suatu transformasi linier, nilai, dan vektor eigen, serta diagonalisasi. Mata kuliah ini juga memberikan keahlian mahasiswa tentang kemampuan menyelesaikan Operasi Baris Elementer (OBE) untuk

memperoleh matriks eselon baris tereduksi, invers matriks, determinan matriks, dan solusi SPL. Serta kemampuan memeriksa apakah suatu himpunan vektor bersifat membangun dan bebas linier, menentukan basis dan dimensi ruang baris, ruang kolom, dan ruang solusi, mentransformasikan suatu basis menjadi basis orthonormal, dan menentukan proyeksi orthogonal dari vektor pada suatu bidang menggunakan metode Gramm-Schmidt, menentukan basis kernel dan jangkauan suatu TL, menentukan matriks yang mendiagonalkan A, beserta matriks diagonalnya. Serta mampu menyelesaikan sistem persamaan differensial menggunakan konsep ruang eigen

This course provides knowledge about matrices, determinants of matrices, vector spaces, inner product spaces, orthogonal, orthonormally, kernel and range of a linear transformation, value, and eigenvectors and diagonalization. This course also gives students skills about solving skills Elementary Row Operations (OBE) to obtain the reduced row echelon matrix, inverse matrix, the determinant of the matrix, and the solution SPL. As well as the ability to check whether a set of vectors is constructive and free linear, determine the basis and dimension of the row space, column space, and space solutions, transforming a basis be orthonormal basis, and determine the orthogonal projection of the vector on a plane using the Gramm-Schmidt, determine the kernel and range of a base TL, determine mendiagonalkan matrix a, along the diagonal matrix. And be able to solve a system of differential equations using the concept eigenspace

Daftar Pustaka - Bibliography

1. Richard Bronson, Gabriel B Costa, John T. Saccoman, "Linear Algebra : Algorithms, Applications and Techniques", 3rd edition, AP Elsevier, 2014
2. Anton H., 2004, Aljabar Linier Elementer, edisi
3. Steven J Leon, 2001, Aljabar Linier dan Aplikasinya,

CEH2F3-Metode Numerik / CEH2F3-Numerical Methods

Matakuliah ini memberikan pengertian dan pemahaman tentang pentingnya solusi numerik dalam setiap persoalan perhitungan matematika, khususnya dalam bidang rekayasa. Matakuliah ini diawali dengan pengetahuan dan pemahaman tentang deret Taylor dan kosep galat. Kemudian matakuliah ini akan mereview beberapa materi kalkulus seperti persamaan non linier, persamaan linier, regresi dan interpolasi, integral, turunan dan persamaan differensial biasa. Selanjutnya diberikan beberapa metoda perhitungan numerik dan bagaimana menyelesaikan semua persoalan kalkulus diatas dengan menggunakan metode-metode tersebut.

Course provides insight and understanding on the importance of numerical solutions of mathematical calculations in every problem, especially in field of engineering. This course begins with knowledge and understanding the Taylor series and error concept. Later this course will review some of the material calculus such as nonlinear equations, linear equations, regression and interpolation, integral, derivative and ordinary differential equations. Furthermore, given some numerical calculation methods and how to solve all of calculus problems using these methods.

Daftar Pustaka-Bibliography :

1. J Steven C.Chapra, Raymond P.Canale, Numerical Methods for Engineers, 2nd Edition, McGraw-Hill Inc, 1988.

2. Rinaldi Munir, Metoda Numerik, Informatika, 1996

FEH2G4- Elektronika / FEH2G4-Electronics

Kompetensi yang diberikan pada mata kuliah ini diharapkan sebagai pondasi pada desain elektronika telekomunikasi. Materi yang diberikan adalah sifat elektronika bahan semikonduktor dan pn junction. Pertama mengenai dioda; karakteristik, parameter, model dan penggunaannya. Selanjutnya mengenai karakteristik, parameter dan model transistor bipolar dan unipolar. Untuk implementasi rangkaian berbasis transistor dijabarkan mengenai rangkaian prategangan serta kestabilannya lebih dahulu lalu dilanjutkan dengan pengenalan konfigurasi penguat dasar dan model sinyal kecilnya. Di mata kuliah ini juga dikenalkan implementasi transistor dalam membangun rangkaian gerbang digital. Selanjutnya diperkenalkan respon frekuensi penguat, umpan balik negatif dan kestabilan, op-amp dan aplikasinya, konsep osilator dan konsep penguat daya

This course provides students with the competence in designing electronic telecommunication. It discusses the electronic characteristics of semiconductor materials and PN junction. The first discussion is about diode which explains the characteristics, parameters, models and uses. Then, the discussion moves to the characteristics, parameters, and models of bipolar and unipolar transistors. To implement the transistor-based circuits, the circuit of bias voltage and its stability are discussed before the introduction of basic amplifier configuration and its small signal model. This course also introduces the implementation of transistor to develop a digital gate circuit. Finally, amplifier frequency response, negative feedback and its stability, and Op-Amp and its application, and the concepts of oscillator and power amplifier are discussed.

Daftar Pustaka – Bibliography

1. Richard C Jaeger, Travis N Blalock, "Microelectronic Circuit Design", 5th edition, Mc Graw Hill, 2016
2. Behzad Razavi, "Fundamentals of Microelectronics", 2nd edition, Jhon Wiley, 2014
3. Dickon Ross, Cathleen Shamieh, Gordon Mc Comb, "Electronics for Dummies", Jhon Wiley, 2010

CEH2G3 -Jaringan Komputer dan Data I / CEH2G3 - Computer Network and Data I

Jaringan komunikasi data membahas proses komunikasi data antar komputer melalui jaringan komunikasi data. Proses komunikasi melibatkan arsitektur protokol OSI & TCP/IP yang didalamnya dijelaskan aturan, mekanisme dan kemampuan protokol setiap layer. Jaringan komunikasi disusun atas berbagai media transmisi dan perangkat jaringan yang memiliki karakteristik tersendiri.

Data communication networks discuss the process of data communication between computers over a data communications network. The process involves communication protocol architecture OSI and TCP / IP are described therein rules, mechanisms and capabilities of each layer protocols. The communications network is prepared on various transmission media and network device that has its own characteristics.

Daftar Pustaka – Bibliography

- [1] Alberto Leon-Garcia dan Indra Widjaja, Communications Networks, Fundamental Concepts and Key Architecture, McGraw-Hill, 2003.

[2] Cisco Network Academy, CCNA Exploration 4.0 1 : Network Fundamentals, Cisco System Inc, 2007

[3] William Stallings, Data and Computer Communications, Eighth Edition, Prentice Hall, 2006.

CEH211 - Praktikum SK II / CEH211 - COMPUTER ENGINEERING Lab Works II

Terdiri dari tiga Mata Praktikum yang masing-masing memberikan empat modul Praktikum, yaitu elektronika, jaringan Komputer dan data, dan Desain Sistem Digital

Practice consists of three courses, each of which provides four modules Practicum, namely electronics, computer and data networks, and Digital System Design

Daftar Pustaka - Bibliography

[1] Modul Praktikum Elektronika Prodi Sistem Komputer 2016

[2] Modul Praktikum Jaringan Komputer dan Data Prodi Sistem Komputer 2016

[3] Modul Praktikum Desain Sistem Digital Prodi Sistem Komputer 2016

CEH2H3 - Desain Sistem Digital / CEH2H3 - Digital Systems Design

Kuliah ini berisikan materi tentang teori dasar-dasar perancangan sistem digital baik di level gerbang logika maupun di level transistor menggunakan teknologi CMOS. Fokus perancangan diarahkan untuk merancang blok-blok rangkaian yang umum terdapat di dalam sebuah prosesor baik yang umum maupun yang spesifik, seperti rangkaian aritmatika yang membentuk ALU, rangkaian multiplexer, decoder, dan encoder, rangkain sel memori dan register serta counter, dan rangkaian sekuensial baik yang bersifat sinkron maupun asinkron.

This lecture contains material about theoretical basics of digital system design both in level and at the level of the logic gate transistors using CMOS technology. The focus of the design is directed to design blocks of the circuit are commonly found in a processor both general and specific, such as a series of arithmetic that form ALU, the multiplexer circuit, the decoder and encoder, the series of memory cells and registers and counters, and a sequential circuit well which is synchronous or asynchronous

Daftar Pustaka - Bibliography

1. Stephen Brown and Zvonko Vranesic. Fundamentals of Digital Logic with Verilog Design. McGraw-Hill. 2014

2. Stephen Brown and Zvonko Vranesic. Fundamentals of Digital Logic with VHDL Design. McGraw-Hill. 2009

3. Volnei A.Pedroni. Circuit Design with VHDL. MIT Press. 2004

CEH3A3 - Sistem Operasi B / CEH3A3 - Operating Systems

Mata kuliah sistem operasi ini dikelompokkan berdasarkan kelompok materi menjadi 3 kelompok, yaitu proses dan thread, memori, dan file/Input dan Output/proteksi dan keamanan yang akan membantu mahasiswa untuk dapat menganalisis, troubleshooting, membuat dan mengembangkan sistem secara keseluruhan.

The course of this operating system are grouped by material group into three groups, namely the processes and threads, memory, and file / Input and Output / protection and security that

will help the students to be able to analyze, troubleshoot, create and develop the overall system.

Daftar Pustaka – Bibliography

- [1] Stalling, W. (2012). *Operating Systems Internals and Design Principles 7th Edition*. Prentice Hall.
- [2] Andrew S. Tanenbaum, “Operating System Design and Implementation, 2nd Edition, Prentice hall, 1997.
- [3] Gary J Nutt, “Operating System, a Modern Perspective, Addison-Wesley, 2nd Edition, 2000.
- [4] Tanenbaum, A., Modern Operating Systems, Prentice Hall, New York, 1992.
- [5] Silberschatz Galvin, Operating System Concepts – Fourth Edition, Addison Wesley, 1995.

CEH3B3 - Mikroprosesor dan Antarmuka / CEH3B3 - MICROPROCESSORS AND INTERFACES

Mahasiswa akan mempelajari tentang prinsip dan mekanisme kerja sistem mikroprosesor, bagaimana mikroprosesor melakukan operasi, penerjemahan kode program, dan eksekusi baris program. Akan dipelajari juga mengenai sinyal kendali dan antarmuka mikroprosesor dengan memori dan sistem I/O dalam pertukaran data. Diberikan juga perbandingan antara prosesor yang digunakan dalam komputer/PC yang berbasis x86 dengan sistem tertanam yang berbasis ARM. Selain itu, diberikan juga materi tentang antarmuka perangkat antara mikroprosesor dengan peripheral pendukung dalam sistem komputer serta bentuk sinyalnya, seperti memori, basic I/O, komunikasi, DMA, dan Interupsi.

The main focus of this course is to give the students the knowledge and skill to analyze the microprocessor architecture and also the wider system consist of it. In this course, will be given the materials about microprocessor basic architecture, including the internal organization, process schemes, set instructions and also comparison between an x86 processor architecture to ARM; interfacing microprocessor to memory and I/O system; communication types and interfaces to other peripherals; interrupt handling; and more modern technologies in microprocessor system as SIMD, MMX, and others.

Daftar Pustaka – Bibliography

1. Barry B. Brey. The Intel Microprocessor: Architecture, Programming, and Interfacing. Prentice Hall. 2009
2. William Stallings. Computer Organization and Architecture: Designing for Performance. Perason. 2010
3. Douglas V Hall. Microprocessor and Interfacing., Prentice Hall, Third Edition, 2006
4. A K Ray, Bhurchandi. Advance Microprocessors and Peripherals. McGraw-Hill. 2006
5. ARM Architecture Refernce Manual. ARM Ltd. 2005

CEH3C3 - Desain Basis Data / CEH3C3 – Database Design

Matakuliah ini berisi teknik perancangan sistem basis data. Diawali dengan konsep tentang sistem basis data, pelajaran dilanjutkan dengan model relasional dan entity relationship

diagram. Implementasi dilakukan dengan Structured Query Language (SQL). Bentuk Normal diberikan sampai derajat 3 dan BCNF. Di akhir kuliah diberikan pembuatan proyek basis data.

This course provides engineering design of the database system. Beginning with the concept of a database system, the lesson continued with the relational model and entity relationship diagram. Implementation is done by Structured Query Language (SQL). Normal Form is given to grade 3 and BCNF. At the end of the lecture given manufacture database project.

Daftar Pustaka - Bibliography :

- [1] Raghu Ramakrishnan and Johannes Gehrke. (2003). *Database Management Systems Third Edition*. McGraw-Hill.
- [2] Henry F. Korth, Abraham Silberschatz. (2011). *Database system concepts 6th Edition*. McGraw-Hill
- [3] C. J. Date. (2006). *An Introduction to Database Systems 8th*. Pearson Education
- [4] Jeffrey Ullman, Jennifer Widom, and Hector Garcia-Molina. (2013). *Database Systems: Pearson New International Edition*. The Complete Book, 2009

CEH3D3 - Keamanan Sistem Komputer / CEH3D3 - COMPUTER SYSTEM SECURITY

Mendiskusikan mengenai kewanaman sistem komputer. Kuliah ini, memiliki tujuan sebagai berikut : mengenalkan dasar kriptografi, memahami perilaku sebuah program(non-malicious program errors, viruses and other malicious code), penanganan pada sistem operasi umum (ACL, kerberos, user authentication), melakukan perancangan keamanan pada sistem operasi (security policies, and models of security), keamanan sistem pada jaringan komputer(ancaman pada jaringan, network security controls, firewalls, IDS), konsep audit security, efek ekonomis dari keamanan, privasi pada komputerisasi, kode etik pada keamanan sistem komputer.

Discussing about computer security basics. In this course, we learn basic cryptography, understanding behaviour of a program(non-malicious program errors, viruses and other malicious code), how to handle general operating system(ACL, Kerberos, User Authentication), designing security on general operating system (security policies, and models of security), network security system (threat, networks security controls, firewalls, IDS), concept of audit security, economy aspect of security, privacy in computing, ethics in security system.

Daftar Pustaka - Bibliography :

- [1] William Stallings, "Network Security Essentials: Application and Standards", Prentice Hall. 2000
- [2] John E.Canavan, " Fundamental of Network Security, Artech House, 2001
- [3] Simon Garfinkel and Gene Spafford , "Practical UNIX and Internet Security", O'Reilly & Assoc.Inc., 1996
- [4] Anderson, Ross. "Security Engineering", 2013
- [5] Pfleeger, Charles. "Security in Computing", 2015
- [6] Bishop, Matt., "Introduction to Computer Security", 2004
- [7] Scheneier, Bruce. "Applied Cryptography", 1994
- [8] Certified Ethical Hacker, 2014

CEH3D3 - Jaringan Komputer dan Data II/ CEH3D3 - Computer Network and Data II

Membahas mengenai protokol-protokol utama pada protokol TCP/IP yang meliputi TCP, UDP, SMTP, POP, SNMP, FTP dan lain- lain beserta pendalaman mengenai router, routing, algoritma dan protokol routing beserta implementasi dan simulasi routing pada simulator packet tracer. Selain itu dibahas pula mengenai uji dan perbandingan berbagai algoritma dan protokol routing sehingga dapat memahami karakteristik diantaranya.

Discusses the main protocols in TCP / IP protocol that includes TCP, UDP, SMTP, POP, SNMP, FTP and others along with the deepening of the router, routing, algorithms and routing protocols and their implementation and simulation of tracer packet routing on the simulator. In addition, it also discusses the test and comparison of various algorithms and routing protocols so as to understand the characteristics of them.

Daftar Pustaka – Bibliography :

- [1] Alberto Leon-Garcia dan Indra Widjaja, Communications Networks, Fundamental Concepts and Key Architecture, McGraw-Hill, 2003.
- [2] Cisco Network Academy, CCNA Exploration 4.0 1 : Network Fundamentals, Cisco System Inc, 2007
- [3] William Stallings, Data and Computer Communications, Eighth Edition, Prentice Hall, 2006.
- [4] CISCO Networking Simplified Second Edition, 2007
- [5] CISCO Certified Network Associate Study Guide Sixth Edition, 2012

CEH3F1 - Praktikum SK III / CEH3F1 - COMPUTER ENGINEERING Lab Works II

Terdiri dari dua Mata Praktikum yang masing-masing memberikan enam modul Praktikum, yaitu mikroprosesor dan antarmuka (ARM) dan Keamanan Sistem Komputer

Practicum consists of two courses, each of which provides Practicum six modules, namely microprocessors and interfaces (ARM) and Computer System Security

Daftar Pustaka – Bibliography :

- [1] Modul Praktikum mikroprosesor dan antarmuka Prodi Sistem Komputer 2016
- [2] Modul Praktikum Keamanan Sistem Komputer Prodi Sistem Komputer 2016

FEH2E2 - Ekonomi Teknik B / FEH2E2 - Engineering Economics B

Mempelajari proses pengambilan keputusan atas alternatif di bidang rekayasa dan bisnis dengan pertimbangan/kriteria ekonomi. Mengenalkan proses atau model pengambilan keputusan di bidang rekayasa. Mempelajari konsep *time value of money*, konsep bunga (*interest*), *cash flow diagram*, ekivalensi (*Present Worth, Annual Worth, Future Worth*). Mempelajari metode-metode analisis sebagai dasar perbandingan alternatif (analisis: PW; AW/EUA; FW; IRR; BCR; *Pay back period; Incremental*). Menjelaskan metode – metode depresiasi, konsep pajak, analisis cash flow setelah pertimbangan pajak dan depresiasi. Mempelajari analisis investasi dengan pertimbangan sensitivitas dan ketidakpastian. Mempelajari analisis replacement.

Study the decision-making process on alternatives in engineering and business considerations / economic criteria. Introduce process or model of decision-making in the field of engineering.

Studying the concept of time value of money, the concept of interest, cash flow diagram, the equivalence (Present Worth, Annual Worth, Future Worth). Studying the methods of analysis as a basis for comparison of alternative (analysis: PW; AW / EUA; FW; IRR; BCR; Pay back period; Incremental). Explaining the method - the method of depreciation, tax concept, analysis of cash flow after tax considerations and depreciation. Studying the investment analysis with consideration of sensitivity and uncertainty. Studying the replacement analysis.

Daftar Pustaka - Bibliography:

1. Bilal M Ayyub, "Risk Analysis in Engineering and Economics", CRC Press, 2014
2. Pedro Franco, "Understanding Bitcoin : Cryptography, Engineering and Economics", Jhon Wiley, 2014
3. Sullivan, Wicks, Luxhoj, "Engineering Economy", 12th Edition, Pearson Education, Inc., 2003, New Jersey, USA
4. Grant, Ireson, Levenworth, "Dasar-Dasar Ekonomi Teknik", PT Rineka Cipta, 2001, Jakarta
5. Thuesen, G.J. & Fabrycky, W.J., "Engineering Economy", 9th Edition, Prentice Hall, Inc., 2001, New Jersey, USA
6. DeGarmo, Sullivan, Bontadelli, Wicks, "Engineering Economy", Tenth Edition, Prentice Hall, Inc., 1997, New Jersey, USA
7. Newnan, Donald G., "Engineering Economic Analysis", Engineering Press, Inc., 1992, California, USA Grant, Ireson, Leavenworth, "Principles of Engineering Economy", John Wiley & Sons, 1990, Singapore

CEH3L1 - Praktikum SK IV / CEH3L1 - COMPUTER ENGINEERING Lab Works IV

Terdiri dari dua Mata Praktikum yang masing-masing memberikan enam modul Praktikum, yaitu pengolahan sinyal digital dan Kecerdasan Buatan

Practicum consists of two courses, each of which provides Practicum six modules, namely digital signal processing and Artificial Intelligence

Daftar Pustaka - Bibliography :

- [1] Modul Praktikum Pengolahan Sinyal Digital Prodi Sistem Komputer 2016
- [2] Modul Praktikum Kecerdasan Buatan Prodi Sistem Komputer 2016

CEH3G3 - Pengolahan Sinyal Digital / CEH3G3 - DIGITAL SIGNAL PROCESSING

Sinyal pada umumnya merupakan sinyal analog, namun pemrosesan sinyal saat ini yang berkembang adalah pemrosesan sinyal digital. Maka, perlu dipelajari proses perubahan sinyal analog menjadi digital (Analog to Digital Converter). Sinyal digital dapat diproses dalam kawasan waktu yang dijabarkan dengan berbagai operasi sinyal, antara lain konvolusi dan korelasi sinyal. Pemrosesan sinyal juga dapat dilakukan dalam kawasan frekuensi dengan memanfaatkan Transformasi Fourier, Transformasi-Z serta transformasi diskrit lainnya yang akan mendukung keperluan analisis sistem diskrit. Analisis sistem diskrit diantaranya adalah analisis kestabilan sistem menggunakan fungsi transfer, analisis respon frekuensi sistem sehingga dapat diketahui jenis filter pada sistem yang digunakan, serta perancangan filter digital. Pengajaran didukung dengan demo simulasi untuk menunjang teori perkuliahan.

The signal is generally an analog signal, but the signal processing which currently developed is digital signal processing. Thus, it is necessary to learn the process of converting analog signal into digital signal (Analog to Digital Converter). Digital signal can be processed within the time which is described in various operating signals, convolution and correlation of signals. Signal processing can also be performed in frequency domain by using Fourier transform, Z-transform and other discrete transformations for the purpose of discrete systems analysis. Discrete systems analysis consist of system stability analysis using Transfer Function, Frequency Response analysis of a system to find out filter types on a system and also to design digital filter. This course is conducted with simulations.

Daftar Pustaka - Bibliography:

- [1] Ludeman, Lonie C. Fundamental of Digital Signal Processing, John Wiley & Sons, Canada, 1987
- [2] Ifeachor, C. Immanuel. Digital Signal Processing : A Practical Approach, Addison Wisley Publishing Co., 1993
- [3] Proakis, G. John & Manolakis, G. Dimitris, Introduction to Digital Signal Processing, Maxwell MacMillan, International Edition, 1989.
- [4] R.H. Sianipar, I.K. Wiryajati, M.Irwan. Pemrosesan Sinyal Digital. Penerbit Andi. 2012.
- [5] Ir. Harlianto Tanudjaja, M.Kom. Pengolahan Sinyal Digital dan Sistem Pemrosesan Sinyal. Penerbit Andi. 2007
- [6] Hayes, Monson H. Digital Signal Processing, Schaum's Outlines. McGraw-Hill. 1999.
- [7] Vasegi, V Saeed. Advanced Digital Signal Processing and Noise Reduction, John Wiley and Sons Ltd, Second Edition. 2000
- [8] Ifeachor, C. Immanuel. Digital Signal Processing : A Practical Approach, Addison Wisley Publishing Co., 1993

CEH3H3 - Organisasi Komputer / CEH3H3 - COMPUTER ORGANIZATION

Materi yang disampaikan adalah sebagai berikut Evolusi dan Kinerja Komputer, Abstraksi dan Teknologi komputer, Representasi Data, Aritmatika Komputer, Arsitektur Instruksi Komputer, Jalur data dan Kontrol, Memori, Bus dan Perangkat Masukan/Keluaran, Unjuk kerja komputer, Pengantar pemrosesan parallel

Material presented is as follows Evolution and Computer Performance, Abstraction and Computer Technology, Data Representation, Computer Arithmetic, Instruction Computer Architecture, Data Path and Control, Memory, Bus and Device Input / Output, Performance Computer, Introduction to parallel processing

Daftar Pustaka - Bibliography:

- [1] "Computer Organization and Design: The Hardware/Software Interface," Revised Printing Third Edition, by David A. Patterson and John L. Hennessy, 2014
- [2] "Computer Architecture and Organization: An Integrated Approach", by Miles J. Murdocca and Vincent P. Heuring, John Wiley & Sons, (2007)
- [3] Stallings, William, Computer Organization and Architecture, 6th ed., Prentice Hall, Inc., 2003.

- [4] Hennessy, John L., & David A. Peterson, Computer Architecture, A Quantitative Approach, Morgan Kaufmann Inc., 1996.
- [5] Hwang, Kai., Advanced Computer Architecture, McGraw-Hill, 1993.
- [6] Mano, M. Morris, Computer System Architecture, Prentice Hall Inc., 1990.
- [7] Randal E. Bryant, David R., Computer Systems A Programmer's Perspective, 2002.
- [8] John L. Hennessy and David A. Patterson , Computer Organization and Design: The Software, 2012
- [9] Hardware Interface, Morgan Kaufmann Publishers, Fourth Edition, 2009.

CEH313 - Kecerdasan Buatan B / CEH313 - ARTIFICIAL INTELLIGENT B

Kuliah ini membahas tentang konsep dasar dan prinsip-prinsip kecerdasan buatan, yang meliputi: dasar-dasar kecerdasan buatan, teknik pencarian atau searching, teknik heuristik, representasi pengetahuan (knowledge), sistem pakar, dan dasar-dasar sistem cerdas yang mencakup konsep Fuzzy Logic, algoritma genetika, dan contoh-contoh implementasinya.

This course provides basic concept and principles of artificial intelligence which covers these chapters: introduction and basic principles of artificial intelligence, searching techniques, knowledge representation, expert system, basic computation of intelligent system such as Fuzzy Logic, Genetic Algorithm and their implementation.

Daftar Pustaka - Bibliography:

- [1] Artificial Intelligence A Modern Approach, Stuart J. Russel and Peter Norvig, Prentice Hall, 2009
- [2] Artificial Intelligence: Foundations of Computational Agents, David Poole and Alan Mackworth, Cambridge University Press, 2010
- [3] The Quest of Artificial Intelligence, Nils J. Nilsson, Cambridge University Press, 2010
- [4] Fuzzy Logic with Engineering Applications, Timothy J. Ross, John Wiley & Sons, 3rd Edition, 2010
- [5] Introduction to Genetic Algorithms, S.N. Sivanandam, S.N. Deepa, Springer, 2008

CEH3J3 - Interaksi Mesin Manusia / CEH3J3 - HUMAN MACHINE INTERACTIONS

Mata Kuliah ini mempelajari tentang interaksi antara manusia dan mesin dalam sebuah sistem. Manusia bertindak sebagai kontrol terhadap mesin atau alat yang menyediakan sebuah keluaran. Interaksi antara manusia dan mesin dapat dikatakan baik apabila interaksi yang terjadi adalah hubungan timbal balik yang produktif dan memiliki tingkat kebergunaan yang tinggi.

This course study about interaction between human and machine in a system. Human acts as control of machine or tools that provide an output. Interaction between human and machine can be good if the interaction is productive and have a high usability.

Daftar Pustaka - Bibliography:

1. Yvonne Rogers, Helen Sharp, Jenny Preece. Interaction Design (3rd Edition). Wiley. 2011

2. Ben Shneiderman and Catherine Plaisant. Designing the User Interface (5th Edition). Addison Wesley. 2010
3. Dan Saffer. Designing for Interaction: Creating Innovative Applications and Devices (2nd Edition). New Riders Publishing. 2009) 3. Bennet, Simon, etc, Object Oriented System Analysis and Design using UML, McGraw Hill., 3/e, 2005,
4. Denis Lalanne and Jurg Kohlas. Human Machine Interaction. Springer. 2009

CEH3K3 - Sistem Kendali dan Mekanika / CEH3K3 - CONTROL SYSTEM AND MECHANICS

Mahasiswa akan mempelajari tentang prinsip dasar sistem, perancangan dan analisis sistem kendali berbasis mekanik dan performansinya. Fokus utama sistem kendali yang dibahas merupakan sistem kendali dengan feedback yang berbasis digital. Analisis performansi ditekankan pada transient-response dan steady state error dari sistem kendali yang dibangun, dengan menggunakan tools software Matlab. Secara umum kuliah ini berisikan materi tentang prinsip dasar sistem, sistem kendali, kestabilan sistem kendali, analisis performansi sistem kendali orde 1 dan orde 2 dengan melihat respon transiennya, analisis sistem kendali pada time dan frequency domain, dan perancangan analisis sistem kendali PID. Akan diberikan juga tentang praktis pengendalian motor DC pada akhir materi.

The main goal of this course is to make sure that students have competencies in designing and analyzing the control system based on mechanical and electrical system model. The main focus of the contents are in performance analysis of digital feedback control system, both time-response and frequency-response. Matlab is used for analyze that kind of problems. Generally, materials of this course contain basic principal of system and signal; control system and its representations; control system stability; performance analysis of control system; mechanical and electrical models of control system; and PID control system. At last, will be given how to implement the control system model to move and stabilize Motor DC movements.

Daftar Pustaka – Bibliography

1. Katsuhiro Ogata. Modern Control Engineering. Pearson. 2010
2. Robert H Bishop. Modern Control System. Prentice Hall. 2011
3. Robert H Bishop. The Mechatronic Handbook. CRC Press. 2002
4. Haadi Saadat. Computational Aids in Control System Using Matlab. Milwaukee University, 2009
5. The Electronics Engineers Handbook. McGraw-Hill. 2005

DUH2A2 – Kewirausahaan / DUH2A2 – Entrepreneurship

Matakuliah Kewirausahaan ini adalah matakuliah dengan konsentrasi pada Business Plan yang dapat diimplementasikan oleh mahasiswa selama satu semester. Mahasiswa dalam tiap tahapan belajar akan mengkaji pokok bahasan Pengertian Kewirausahaan, Motivasi, Inovasi, Kepemimpinan, Kreativitas, Pengembangan Ide, Kerja Sama, Negoisasi – Relasi Usaha, Business Plan, dan Praktik Business Plan yaitu merancang dan mengevaluasi business plan.

Entrepreneurship course this is subject to the concentration in the Business Plan that can be implemented by a student for one semester. Students in each stage study will examine the subject of Understanding Entrepreneurship, Motivation, Innovation, Leadership, Creativity, Idea Development, Cooperation, Negotiations - Business Relations, Business Plan, and Practice Business Plan is to design and evaluate the business plan.

Daftar Pustaka – Bibliography :

- [1] Ir. Hendro, MM, *Dasar-dasar Kewirausahaan*, Penerbit Erlangga 2011
- [2] John C. Maxwell, *The Five Level of Leadership*, MIC 2014
- [3] Deepak Malhotra, *I Move Your Cheese*, MIC 2014
- [4] Tim Kick Andy, *Kreativitas Tanpa Batas*, Bentang Pustaka 2014
- [5] John C. Maxwell, *Teamwork Makes The Dream Work: Wujudkan Impian Besarmu*, MIC 2015
- [6] Robby I. Chandra, *Serial Perjalanan Kepemimpinan: Kamu Juga Bisa!*, Young Leaders Indonesia 2010

FEH4A2-Penulisan Karya Ilmiah dan Proposal / FEH4A2 - Scientific Writing and Proposal

Matakuliah ini bertujuan membantu mahasiswa dalam menyiapkan rencana penelitian dalam tugas akhirnya. Selama proses ini, mahasiswa diarahkan dalam menyusun proposal penelitian dari tahap pemilihan topik sampai dengan penulisan rencana penelitian kedalam proposal. Mata kuliah ini dilakukan secara kelompok dengan minimal 2 mahasiswa dalam satu kelompok. Topik besar diberikan oleh calon dosen pembimbing kemudian dibagi ke dalam sub topik, dimana setiap mahasiswa dalam kelompok membuat proposal pengerjaan sub topik tersebut. Pada akhir perkuliahan, masing-masing mahasiswa mempresentasikan proposal tugas akhirnya dalam forum kelas.

This course is to help students prepare their final project/research proposal. This course guides students to write research proposals from selecting research topics to writing their research plans in proposals. This course is done in groups/capstone design with a minimum of 2 students in one group. Great topic by the prospective supervisor then divided into sub-topics, where each student in the group making the proposal workmanship sub topics. By the end of the course, each student is required to present their final project proposal to the class.

Daftar Pustaka – Bibliography :

1. Buku Pedoman Penulisan Proposal Tugas Akhir Prodi Sistem Komputer 2016
2. Alexander M. Novikov, Dmitry A. Movikov, "Research Methodology : From Philosophy of Science to Research Design", CRC Press, 2013
3. Loraine Blaxter, Christina Hughes and Malcolm Tight, " How To Research", 4th edition, Mc Graw Hill, 2010
4. Pat Cryer, "The Research Student's Guide to Success", 3rd edition. Mc Graw Hill, 2006
5. Thomas E. Ogden, "Research Proposals : A guide to Success", 3rd edition, Academic Press Elsevier, 2002

CEH4A3 - Pengkodean dan Kompresi data / CEH4A3 - CODING AND COMPRESSION

Mata kuliah ini mencakup materi pengantar kompresi data, teori informasi dasar untuk Lossless Coding: kuantitas informasi, entropi, Kraft-McMillan Inequality, Prefix- Free Code; teknik-teknik kompresi untuk lossless coding: Huffman Coding, Golomb dan Tunstall Code, Arithmetic Coding, Dictionary Technique, RLE dan BW Transform; pengantar kompresi lossy, kuantisasi skalar dan vektor pada teks dan citra.

This course covers introductory material data compression, information theory basis for Lossless Coding: the quantity of information, entropy, Kraft-McMillan Inequality, Prefix- Free Code; techniques for lossless compression coding: Huffman Coding, Golomb and Tunstall Code,

Arithmetic Coding, Dictionary Technique, RLE and BW Transform; introduction lossy compression, scalar and vector quantization in text and image.

Daftar Pustaka – Bibliography :

- [1] Yo Sung Ho, "Advanced Video Coding for Next Generation Multimedia Services," In Tech Publishing, 2013
- [2] Khalid Sayood, 'Introduction to Data Compression', Morgan Kaufmann Publishers, 2nd Edition, 2000.
- [3] T.M. Cover, J.A. Thomas, *Elements of Information Theory*, 2nd Edition, John Wiley&Sons, 2006
- [4] Adam Drozdek, *Elements of Data Compression*, Thomson Brooks/Cole, 2002
- [5] Khalid Sayood, *Introduction to Data Compression*, Academic Press, 2000.

CEG4B3 - Sistem Multimedia / CEG4B3 – Multimedia Systems

Pengenalan Sistem Multimedia, ADC-DAC, Pengenalan dan Perhitungan Ukuran File/Data, Dasar Pengolahan Citra Digital, Peningkatan Kualitas Citra, Perbaikan Citra, Segmentasi Citra, Aplikasi Pengolahan Citra Digital, Pemrosesan Sinyal Audio, Pengenalan Ucapan, Pemfilteran Audio, Pengolahan Video Digital.

Introduction to Multimedia System, ADC-DAC, Introduction and Size Computation of File/Data, Fundamental Digital Image Processing, Image Enhancement, Image Restoration, Image Segmentation, Image Processing Application, Audio Signal Processing, Speech Recognition, Audio Filtering, Digital Video Processing.

Daftar Pustaka – Bibliography

- [1] Yo Sung Ho, "Advanced Video Coding for Next Generation Multimedia Services," In Tech Publishing, 2013
- [2] A. Milovanovic, Zoran S. Bojkovic, Dragorad A. Milovanovic, Kamisetty Ramamohan Rao: "Multimedia Communication Systems: Techniques, Standards, and Networks", 2002 Prentice Hall
- [3] F. Halsall: "Multimedia Communications: Applications, Networks, Protocols, and Standards", 1/e 2000 Addison-Wesley
- [4] Ludeman, Lonie C. *Fundamental of Digital Signal Processing*, John Wiley & Sons, Canada, 1987
- [5] Ifeachor, C. Immanuel. *Digital Signal Processing : A Practical Approach*, Addison Wisley Publishing Co., 1993
- [6] F. Halsall: "Multimedia Communications: Applications, Networks, Protocols, and Standards", 1/e 2000 Addison-Wesley
- [7] *Image Processing and Video Processing*, Matlab
- [8] *Speech and Audio Processing*, Matlab.

FEH2D2- Studium General / FEH2D2-Studium Generale

Mata kuliah ini memberikan wawasan terkini kepada mahasiswa terkait isu – isu di bidang ICT, lingkungan, politik, hukum, ekonomi, sosial dan budaya. Diharapkan agar mahasiswa dapat memanfaatkan wawasan tersebut untuk mengaplikasikan ICT di bidang- bidang tersebut serta mengetahui dampaknya.

This course provides the latest insights to the students related issues in the field of ICT, environmental, political, legal, economic, social and cultural. It is expected that students can take advantage of that insight to apply ICT in these areas and know the effects of its application.

Daftar Pustaka – Bibliography

1. Vojin G. Oklobdzija, "The Computer Engineering Handbook, Second Edition - 2 Volume Set", CRC Press, 2008
2. Jyrki T.J Penttinen, "The Telecommunication Handbook", Jhon Wiley, 2015
3. Daniel B. Botkin, Edward A. Keller, "Environmental Science : Earth as Living Planet, 9th edition, Jhon Wiley, 2014
4. Daniel Batu, "New Telecommunication Networks : Enterprise and Security", Wiley, 2014

FEH3D3 - Manajemen Proyek / FEH3C3-Project Management

Kuliah ini mempelajari hubungan antara manajemen proyek, manajemen operasi dan strategi secara organisasi serta bisnis yang terkandung dalam manajemen proyek. Mahasiswa juga dibekali dengan aturan, prosedur dan kemampuan sebagai manajemen proyek. Kuliah ini memberikan kemampuan komunikasi dan kerjasama dalam tim.

This study looks at the relationship between project management, operations management and strategy as well as business organizations contained in project management. Students are also provided with the rules, procedures and capabilities as project management. This lecture provides communication and cooperation within the team.

Daftar Pustaka – Bibliography

1. Project Management Institute, "A Guide To The Project Management Body Of Knowledge (PM BOK Guide)", 5th edition, Project Management Institute Inc, 2013
2. Project Management Institute, "Organizational Project Management Maturity ", 3rd edition, Project Management Institute Inc, 2013
3. Project Management Institute, "The Standard For Portfolio Management", 3rd edition, Project Management Institute Inc, 2013

FEH4B4 -Tugas Akhir / FEH4B4-Final Project

Matakuliah ini merupakan kelanjutan untuk mengimplementasikan hasil penulisan karya ilmiah dan Proposal yang telah diseminarkan. Mata kuliah ini dilakukan secara kelompok dengan minimal 2 mahasiswa dalam satu kelompok. Topik besar diberikan oleh calon dosen pembimbing kemudian dibagi ke dalam sub topik, dimana setiap mahasiswa dalam kelompok mengerjakan sub topik tersebut. Judul, Pembimbing I, dan Pembimbing II Tugas Akhir dikukuhkan melalui Surat Keputusan yang mendukung keabsahan proses kegiatan Tugas Akhir, dengan masa berlaku selama 1 (satu) semester, yang dapat diterbitkan setelah mahasiswa lulus Tingkat III dan lulus matakuliah minimal 120 sks. Implementasi dimulai dari studi pustaka yang lebih mendalam, menarik hipotesa dari penelitian pendahuluan dan penelitian terdahulu, melakukan percobaan untuk mendapatkan data, menganalisa data dan menarik kesimpulan. Hasil penelitian akan ditulis dan disidangkan pada suatu Sidang Tugas Akhir.

This course is a continuation to implement the results of the draft of the final project Proposals that have presented. This course is done in groups /capstone design with a minimum of 2

students in one group. Great topic by the prospective supervisor then divided into sub-topics, where each student in the group working on the sub topics. *Title, Supervisor I and Supervisor II final project confirmed by letter of decision that supports the legitimacy of activities final project, with validity period of 1 (one) term, which may be issued after students graduated and passed the Level III course minimum 120 credits. Implementation starts from the literature more profound, interesting hypothesis of preliminary research and the previous study, experiment to obtain the data, analyze the data and draw conclusions. Results of the research will be written and brought to trial in a Session Final Project.*

Daftar Pustaka_Bibliography:

- [1] Buku Panduan Penulisan Tugas Akhir Fakultas Teknik Elektro 2016
- [2] Buku Pedoman Pendidikan Telkom University 2015

FEH4B2-Kerja Praktek / FEH4B2 - Internship

Pada program ini, mahasiswa melakukan pekerjaan yang sesuai dengan keahlian bidang ICT di perusahaan multinasional. Melalui program ini mahasiswa diharapkan dapat meningkatkan kemampuan keterampilannya, kemampuan berkomunikasi dan kemampuan bekerja sama. Mahasiswa mencari lokasi tempat kerja praktek dan dibimbing oleh pembimbing akademik serta pembimbing lapangan. Pada akhir program, mahasiswa membuat laporan tertulis dan akan dinilai oleh pembimbing akademik dan pembimbing lapangan.

In this program, the students do the work in accordance with expertise in the field of ICT in multinational companies. Through this program, students are expected to improve their skills, communication skills and ability to cooperate. Students find the location of workplace practices and guided by counselors and tutors field. At the end of the program, students make a written report and will be assessed by counselors and tutors field.

Daftar Pustaka_Bibliography:

- 1. Buku Pedoman Kerja Praktek Fakultas Teknik Elektro 2016
- 2. Buku Pedoman Pendidikan Telkom University 2015

DUH2B2 - Geladi / DUH2B2 - BASIC ON THE JOB TRAINING

Pada program ini, mahasiswa dikenalkan sedini mungkin tentang ruang lingkup pekerjaan di bidang ICT di perusahaan mitra. Mahasiswa melakukan beberapa pekerjaan kecil agar mahasiswa lebih mengenal ruang lingkup pekerjaan mereka ketika lulus dari universitas. Mahasiswa dibimbing oleh pembimbing akademik dan pembimbing lapangan. Pada akhir program, mahasiswa membuat laporan tertulis dan akan dinilai oleh pembimbing akademik dan pembimbing lapangan.

In this program, students are introduced as early as possible about the scope of work in the field of ICT in the partner company. Students do several small jobs to make students more familiar with the scope of their employment when graduating from university. Students are guided by counselors and tutors field. At the end of the program, students make a written report and will be assessed by counselors and tutors field

Daftar Pustaka – Bibliography :

1. Buku Pedoman Geladi Universitas Telkom
2. Buku Pedoman Pendidikan Telkom University 2015

CEH4E3 – Robotika dan Sistem Cerdas / CEG4F3 – ROBOTICS AND INTELLIGENT SYSTEMS

Kuliah ini membahas tentang konsep dasar robotika dan sistem cerdas, yang meliputi: pengenalan robotika, Sistem Mekanik, Perpindahan Gerak robot, Model Kinematika, Model Statik, Model Dinamik, Perencanaan Gerak Robot, Sensor Robot, Autonomous robot, Emergence Behaviour, Mobile Robot, Visual Persepsi, Fuzzy, dan Q-Learning.

This course discusses the basic concepts of robotics and intelligent systems, which include: the introduction of robotics, System Mechanic, displacement motion robot, Model Kinematics, Model Static, Model Dynamic Planning Motion Robot, Sensor Robot, Autonomous robots, Emergence Behaviour, Mobile Robots, Visual perception, Fuzzy, and Q-Learning

Daftar Pustaka – Bibliography

1. Ming Xie, Fundamentals of Robotics, 2003
2. Ulrich Nehmzow, Scientific Methods in Mobile Robotics, Springer-Verlag London Limited, 2006
3. Roland Siegwart and Illah R. Nourbakhsh, Introduction to Autonomous Mobile Robots, 2004
4. Csaba Szepesvari, Algorithms for Reinforcement Learning, 2009
5. Robin R. Murphy, Introduction to AI Robotics, 2000

CEH4D3 - Komputer Forensik / CEH4D3 – Komputer - Computer Forensics

Membahas tentang pengetahuan dalam investigasi sebuah kejadian yang berhubungan dengan sistem komputer. Pada mata kuliah ini dibahas bagaimana memahami sebuah hard disks dengan jenis partisi tertentu, melakukan duplikasi data, tata cara melakukan menangani bukti digital, bagaimana mencatat rekaman data, investigasi serangan wireless, serangan web, investigasi data terhapus dan partisi terhapus, steganografi, analisis fungsi hash seperti MD5 dan SHA1, dan forensik pada perangkat mobile. Pada mata kuliah ini dibahas pula mengenai pembuatan laporan hasil investigasi dan diajarkan pula bagaimana cara menjadi saksi ahli.

Discussing about knowledge in investigation that happened at computer's attack (hacking). discussing how to understand a specify partition on hard disks, doing duplication data, how to handle digital evidence, how to records data, wireless investigation, web investigation, deleted data and partition investigation, steganografi, MD5 & SHA1 hash function analysis, and mobile forensics. In this course, we also discuss how to make investigation report and how to act as expert witnesses.

Daftar Pustaka – Bibliography:

- [1] E. Casey, "Digital Evidence and Computer Crime, Third Edition: Forensic Science, Computers, and the Internet", Academic Press, 2011.
- [2] A. J. Marcella Jr. and F. Guilloso, "Cyber Forensics: From Data to Digital Evidence", Wiley, 2012

CEH4E3 - Computer Vision A / CEH4E3 - Computer Vision A

Kuliah ini membahas tentang konsep dasar computer vision secara teori beserta aplikasinya dengan cakupan materi meliputi teknik dasar pengolahan citra; segmentasi obyek, pengelompokan obyek dan deteksi tepi; ekstraksi dan pencocokan ciri; deteksi, pengenalan dan klasifikasi obyek; estimasi gerak dan tracking.

This course provides an introduction to computer vision theoretically and practically which covers these topics: fundamentals techniques of image processing; object segmentation, grouping, and boundary detection; feature extraction and matching; object detection, recognition, and classification; motion estimation and tracking.

Daftar Pustaka – Bibliography:

- [1] Computer and Machine Vision: theory, Algorithms, Practicalities, E. R. Davies, Academic Press, 4th edition, 2012
- [2] Computer Vision: Algorithms and Applications, Richard Szeliski, Springer, 2010
- [3] An Introduction to 3D Computer Vision Techniques and Algorithms, Boguslaw Cyganek, J. Paul siebert, John Wiley & Sons, 2009
- [4] Computer Vision and Applications: A Guide for Students and Practitioners, Academic Press, 2000
- [5] Computer Vision, Linda Saphiro, George Stockman, 2000

CEH4F3 - Pembelajaran Mesin / CEH4F3 - Machine Learning

Kuliah ini membahas tentang Machine Learning dan membahas beberapa algoritma, yang meliputi: pengenalan Machine Learning, tipe Machine Learning, Pembelajaran dengan statistik, Aturan dan Logika Program, Algoritma klasifikasi, Pohon Keputusan, Jaringan Syaraf Tiruan, Support Vector Machines, Algoritma Clustering, dan Reinforcement Learning.

This course discusses on Machine Learning and discusses some algorithms, which include: the introduction of Machine Learning, the type of Machine Learning, Learning with statistics, Rules and Logic Program, Algorithms classification, Decision Trees, Neural Networks, Support Vector Machines, Algorithm Clustering, and Reinforcement Learning.

Daftar Pustaka – Bibliography:

- [1] Ethem Alpaydm, Introduction to Machine Learning, 2010
- [2] Christopher Bishop, Pattern Recognition and Machine Learning. Springer, 2006.
- [3] Alex Smola and S.V.N. Vishwanathan, Introduction to Machine Learning, 2008
- [4] Csaba Szepesvari, Algorithms for Reinforcement Learning, 2009
- [5] Richard S. Sutton and Andrew G. Barto, Reinforcement Learning: An Introduction, 2012

CEH4G3 - Arsitektur Komputer / CEH4G3 - COMPUTER ARCHITECTURE

Ruang lingkup : Aspek-aspek fundamental dari desain arsitektur komputer, desain prosesor, pipelining, superscalar, out-of-order execution, static ILP (Instruction-Level Parallelism), dynamic ILP, Thread-Level Parallelism, VLIW (Very Long Instruction Word), arsitektur multicore, grid processor, nano computing, prosesor Itanium, fault tolerance

The scope: Fundamental aspects of the design of computer architecture, processor design, pipelining, superscalar, out-of-order execution, static ILP (Instruction-Level Parallelism),

dynamic ILP, Thread-Level Parallelism, VLIW (Very Long Instruction Word) , multicore architecture, the grid processor, nano computing, the Itanium processor, fault tolerance

Daftar Pustaka – Bibliography:

- [1] Hwang, Kai., “ Advanced Computer Architecture : Parallelism, Scalability, Programmability “, McGraw Hill, Inc., 1992.
- [2] El-Rewini, Hesham and Mostafa Abd-El-Barr., “ Advanced Computer Architecture and Parallel Processing ”, John Wiley & Sons, 2005.
- [3] Akhter, S., and J. Roberts, “ Multicore Processing “, Intel Press, 2006.
- [4] Hennessy, John., and David Patterson, “ Computer Organization and Design “, 4th ed., Morgan Kaufmann, 2007.
- [5] Keckler, S.W., K. Olukotun, and H.P. Hofstee, “ Multiprocessors and Systems “, Springer ed., 2009.
- [6] Patterson, David., and John Hennessy., “ Computer Architecture : A Quantitative Approach “, 5th ed., Morgan Kaufmann, 2011.

CEH4H3 - Sistem Tertanam / CEG4H3 - Embedded System

Mahasiswa diharapkan memiliki kompetensi di bidang perancangan, implementasi, serta analisis perangkat keras bidang kendali dan komputer berbasis sistem tertanam (embedded system). Perkuliahan ini berisi tentang penanaman konsep dasar perancangan sistem tertanam meliputi pengetahuan tentang arsitektur prosesor ARM untuk pengembangan sistem tertanam mulai dari organisasi register hingga penanganan interupsi dan set instruksi, pemrograman hardware berbasis C dan optimasi program, teori dan contoh pembuatan firmware dan embedded operating system, diakhiri dengan proyek membuat aplikasi berbasis sistem tertanam.

The main goal of this course is to make sure that students have competencies in designing and analyzing embedded system including hardware and software. This course contains materials about basic architecture of embedded system including hardware and software; how to design, validate, and evaluate the embedded system model built; ARM SoC system architecture for embedded system including register organization and instruction set, also the exception handling; hardware programming using C language and how to optimize them; how to build the firmware and embedded OS; and the last is final project to implement embedded system application.

Daftar Pustaka – Bibliography :

1. Sloss, Symes, Wright. ARM System Developer's Guide: Designing and Optimizing System Software. Morgan Kauffman. 2004
2. Jason Andrews. Co-Verification Hardware and Software: for ARM SoC Design. Elsevier. 2005
3. Ken Arnold. Embedded Controller Hardware Design. LLH Technology Publishing. 2001
4. ARM Architecture Reference Manual. ARM Ltd. 2005
5. Rajkamal. Embedded System: Architecture, Programming, and Design. McGraw-Hill. 2008

CEH4I3 - Processor Grafis / CEH4I3 - Graphics Processor

Mendiskusikan bagaimana sebuah prosesor grafis bekerja, membahas mengenai perkembangan prosesor grafis. Dan melakukan perbandingan sistem kinerja beberapa jenis prosesor grafis. Mempelajari arsitektur pipeline grafis secara real-time. Kuliah ini ditujukan kepada mahasiswa yang tertarik dengan perkembangan arsitektur grafis atau pemrosesan gambar.

Discussing how a graphics processor works, discussing development of graphic processor. Comparing performance between several graphics processors. Learning real-time graphics architecture pipeline. This Course is designed for student who interested in architecting future graphics or image processing

Daftar Pustaka - Bibliography:

- [1] Tessellation Overview. Direct3D 11 Programming Guide. Microsoft Dev Center Documentation, 2011
- [2] D. Blythe, Rise of the Graphics Processor. Proceedings of the IEEE, 2008
- [3] T. Akinene-Moller and E. Haines, Real-Time Rendering , 2007

CEH4J3 - Desain LSI / CEH4J3 - VLSI Design

Memahami dan membuat Alur Desain VLSI, Belajar Transistor-Tingkat Logika Desain CMOS, memahami Fabrikasi VLSI dan membuat Desain Fisik CMOS, Belajar Menganalisa Gerbang Fungsi dan Timing Karakteristik, mempelajari fungsi blok pada level tinggi digital, Visualisasi Desain Chip Digital CMOS

Understand and Experience VLSI Design Flow, Learn Transistor-Level CMOS Logic Design, Understand VLSI Fabrication and Experience CMOS Physical Design, Learn to Analyze Gate Function and Timing Characteristics, Study High-Level Digital Functional Blocks, Visualize CMOS Digital Chip Design

Daftar Pustaka - Bibliography:

- [1] Neil H.E. Weste and David Money Harris, CMOS VLSI Design a Circuit and Systems Perpective, 4th editin, Addison Wesley, 2011,
- [2] J. Uyemura, Introduction to VLSI Circuits and Systems, Wiley, 2002.

CEH4K3 - Komputasi Bergerak / CEH4K3 - MOBILE COMPUTING

Tujuan perkuliahan ini adalah mengenalkan konsep, arsitektur, dan perangkat komputasi bergerak. Di dalam perkuliahan ini juga dibahas berbagai aspek dalam mobile computing, mencakup routing, data management, bandwidth management, kehandalan, keamanan dan konsumsi daya, jenis-jenis mobile internet mencakup mobile IP dan mobile Web, serta penerapannya dalam berbagai bidang, mencakup kegiatan surveillance, navigasi laut, navigasi udara, pemantauan cuaca dan bencana, mobile learning, penerapannya dalam bidang militer, olah raga, pemantauan kesehatan pasien dalam bidang kedokteran, dan dalam bidang logistik-distribusi.

The purpose of this lecture is to introduce concepts, architectures, and mobile computing devices. In the course of this also discussed various aspects of mobile computing, including routing data management, bandwidth management, reliability, security and power consumption, the types of mobile internet include mobile IP and mobile Web, as well as its application in various fields, including surveillance activity, marine navigation, air navigation,

weather monitoring and disaster management, mobile learning, its application in the military, sports, health monitoring of patients in the medical field, and in logistics-distribution.

Daftar Pustaka – Bibliography:

- [1] Garg, Kumkum., Mobile Computing : Theory and Practice, Darling Kindersley, (India) Private Ltd., 2010.
- [2] Talukder, Ashoke., Hasan Ahmed, Roopa R. Yavagal., Mobile Computing : Technology Applications and Service Creation, Tata McGrawHill, 2010.
- [3] Mainak Chaudhuri, Smartphone Hardware :Anatomy of A Handset, Indian Institute of Technology Kanpur Commonwealth of Learning Vancouver, 2013.
- [4] Adem Korachoca, " Advances and Applications in Mobile Computing ", In Tech Publ. Co, 2012.
- [5] Raj Kamal, " Mobile Computing ", Oxford University Press, 2016.

CEH4L3 - Pengantar Jaringan Masa Depan/ CEH4L3 - NEXT GENERATION NETWORKS

Konsep jaringan terintegrasi berbasis data paket sebagai pembawa semua layanan, arsitektur dasar jaringan masa depan, layering, integrasi dengan jaringan eksisting, langkah migrasi, komponen dasar : softswitch, IMS, SIP. Keamanan system NGN dan regulasinya.

he concept of integrated network-based packet data as the carrier of all the services, the basic architecture of future networks, layering, integration with existing network, step migration, basic components: softswitch, IMS, SIP. NGN security system and its regulation.

Daftar Pustaka – Bibliography

- [1] Daniel Minoli, Nanotechnology Applications to Telecommunications and Networking, 2005
- [2] Syed Asad Hussain, Active and Programmable Networks for Adaptive Architectures and Services, 2006.

CEH4M3 - Komputer Paralel / CEH4M3 - PARALLEL COMPUTING

Mahasiswa diharapkan memahami dasar pemrosesan paralel, bagaimana komunikasi dan kinerja antar prosesor dalam mengeksekusi sebuah instruksi, serta arsitektur paralel. Selain itu, mahasiswa diharapkan mampu membuat program sederhana menggunakan MPI, OpenMP, atau CUDA.

Students are expected to understand basic parallel processing, how the inter-processor communication and performance in executing an instruction, as well as parallel architecture. In addition, students are expected to make a simple program using MPI, OpenMP, or CUDA

Daftar Pustaka – Bibliography :

- [1] G. F. Coulouris, J. Dollimore & T. Kindberg. (2011). *Distributed Systems: Concepts and Design*. Pearson.
- [2] El-Rewini, Hashem.,Theodore G. Lewis & Hesham H. Ali., Task Scheduling in Parallel and Distributed Systems, Prentice Hall,,Inc., USA, 1994.
- [3] Lewis, Ted G., Hesham El-Rewini, Introduction to Parallel Computing, Prentice Hall Inc.,1992.

- [4] Bertsekas, Dimitri P., John N. Tsitsiklis, Parallel and Distributed Computation, Prentice Hall Inc., USA, 1989.

CEH4N3 - Antrian dan Rekayasa Trafik / CEH4N3 - QUEUEING AND TRAFFIC ENGINEERING

Ruang lingkup teletraffic engineering, berbagai terminologi trafik, perhitungan trafik, grade of service, berbagai distribusi : Poisson, Erlang, Engset, berbagai tipe / pemodelan antrian : M/M/1, M/M/m, M/G/1, G/M/1, G/M/m, G/G/1, dll; Priority Queueing Model.

The scope of teletraffic engineering, various terms of traffic, the calculation of traffic, grade of service, a variety of distribution: Poisson, Erlang, Engset, various types / modeling queue: M / M / 1, M / M / m, M / G / 1, G / M / 1, G / M / m, G / G / 1, etc; Priority Queueing Model.

Daftar Pustaka - Bibliography:

- [1] Lipsky, Lester R., Queueing Theory, McMillan Co., USA, 1992.
 [2] Walrand, Jean, An Introduction to Queueing Networks, Prentice Hall Inc., USA, 1988.
 [3] Kleinrock, Leonard., Queueing Systems, Vol. I & II, John Wiley & Sons, Inc., USA, 1975.
 [4] Boucher, James R., Voice Teletraffic System Engineering, Artech House, Inc., USA, 1988.
 [5] Schwarz, Mischa., Telecommunications Network, Addison Wesley Inc., USA, 1987.