Course Syllabus

MASTER OF COMPUTER SCIENCE IN INFORMATION SYSTEM

Department of Information Systems
INSTITTUT TEKNOLOGI SEPULUH NOPMEBER | SURABAYA

Graduate Profiles

Magister Sistem Informasi ITS mendidik mahasiswa menjadi Profesional Teknologi Informasi yang mampu mengembangkan metode Sains Sistem Informasi untuk menyelesaikan berbagai permasalahan **praktis** maupun **penelitian** dalam 5 peran Profil Lulusan, yakni:

*Master of Information Systems educates the students to become an Information Technology Professional who is able to develop Information Systems scientific methods to solve various **practical** and **research** problems in the 5 (five) Graduate Profiles:*

Profil Lulusan (*Graduate Profiles*)	Deskripsi (*Description*)
Business Analyst ***(BA)***	Menganalisis potensi solusi digitalisasi dan Sistem Informasi untuk peningkatan bisnis/unjuk kerja organisasi. Mengidentifikasi area-area di mana perubahan Sistem Informasi dibutuhkan untuk mendukung rencana bisnis dan memonitor pengaruhnya dalam manajemen perubahan. Berkontribusi dalam penyediaan solusi-solusi Teknologi Informasi dan Komunikasi (TIK) bagi kebutuhan fungsi-fungsi umum organisasi dengan menganalisis kebutuhan-kebutuhan bisnis dan menerjemahkannya ke dalam solusi-solusi TIK. *Analyzes information systems for improving business performance. Identifies areas where information system changes are needed to support business plans and monitors the impact in terms of change management. Contributes to the general functional requirements of the business organization in the area of ICT solutions. Analyzes business needs and translates them into ICT solutions.*
Systems Analyst ***(SA)***	Mengalisis kebutuhan dan spesifikasi perangkat lunak dan sistem, merancang desain teknis, dan mendukung implementasi perangkat lunak baru dan/atau pengembangannya. *Analyzes requirements and specifies software and systems. Ensures the technical design and contributes to implementation of new software and/or enhancements*
IS Project Manager ***(ISPM)***	Mengelola proyek-proyek Sistem Informasi agar mencapai kinerja optimal dan memenuhi spesifikasi yang telah disepakati. Mengidentifikasi, mengimplementasikan, dan mengelola proyek-proyek Sistem informasi dari konsep, inisiasi, hingga closing. Bertanggung-jawab mencapai hasil yang optimal, memenuhi standar kualitas dan keamanan, berkelanjutan memenuhi cakupan, kualitas, biaya, dan jadwal yang telah disepakati.

	Manages Information System projects to achieve optima performance conforming to original specifications. Defines, implements, and manages projects from conception to final delivery. Responsible for achieving optimal results; conforming to standards for quality, safety; and sustainability and complying with defined scope, performance, costs, and schedule
Business Information Manager ***(BIM)***	Merekomendasikan, merencanakan dan mengelola pengembangan/evolusi Sistem Informasi dalam domain bisnis tertentu, baik secara fungsional maupun teknis. Mengelola dan mengimplementasikan pengembangan aplikasiaplikasi yang telah ada dan aktivitas-aktivitas pemeliharaan sesuai dengan kebutuhan, biaya, dan perencanaan yang disetujui pengguna internal organisasi. Mengelola kualitas layanan dan kepuasan pengguna internal organisasi. *Proposes, plans, and manages functional and technical evolutions of the information system in the relevant business domain. Manages and implements updates to existing applications and maintenance activities guided by the needs, costs, and plans agreed with internal users. Ensures quality of service and internal user satisfaction*
Enterprise Architect ***(EA)***	Merancang dan mengelola (memelihara) Arsitektur Enterprise Organisasi. Menjaga keseimbangan antara peluang-peluang implementasi teknologi dengan kebutuhan proses bisnis organisasi. Memantau dan memuktakhirkan integrasi antara visi dan misi bisnis, strategi bisnis, strategi TI, proses, informasi, dan aset-aset TIK. *Designs and maintains the enterprise architecture. Balances technological opportunities with business (process) requirements. Maintains a holistic view of the organization's strategy, processes, information, and ICT assets. Links the business mission, strategy, and processes to the IT strategy*
ICT Consultant ***(ICTC)***	Mendukung pemahaman tentang bagaimana teknologi-teknologi informasi dan komunikasi terkini dapat meningkatkan value bisnis. Senantiasa memperbaharui wawasan dan pemahaman teknologi-teknologi terbaru untuk menginformasikannya kepada pemangku kepentingan. Membantu peningkatan kematangan proyek-proyek TIK dengan memperkenalkan teknologi yang sesuai. Mengkomunikasikan value teknologi-teknologi terbaru kepada bisnis dan berkontribusi dalam pendefinisiasi proyek. *Supports understanding of how new ICT technologies add value to a business. Ensures technological watch to inform*

	stakeholders of emergent technologies. Anticipates and brings to maturity ICT projects by the introduction of appropriate technology. Communicates the value of new technologies to the business. Contributes to project definitions.

Program Learning Outcomes (PLO)

Terdapat **12 Capaian Pembelajaran Lulusan (CPL) Prodi** atau **Program Learning Outcomes (PLO)** yang dikelompokkan dalam target Pengetahuan, Sikap, Ketrampilan Umum, dan Ketrampilan Khusus.

There are 12 ***Program Learning Outcomes (PLO)*** *classified into 4 components: Knowledge, Attitude, Generic skills, dan Specific skills.*

Area	Code	Program Learning Outcomes (PLO)
Sikap *Attitude*	**AT01**	Memiliki **moral, etika, kepribadian**, dan kemampuan **komunikasi** yang baik di setiap aktivitas serta menghargai keberagaman budaya, pendapat, agama, dan kepercayaan berdasarkan **ketakwaan** kepada Tuhan Yang Maha Esa. *Have a good moral, ethics, personality, and communication skill in each activity with respects for cultural diversity, views, beliefs, and religions based on Taqwa to God Almighty*
	AT02	Bangga sebagai warga negara dan berkontribusi bagi kepentingan sosial dan **nasional** dengan disiplin mematuhi peraturan dan hukum. *Proud to be citizen and contribute to social and national interest by obeying the law and legal discipline*
Pengetahuan *Knowledge*	**KN01**	Memahami konsep-konsep dan metode-metode **audit**, aktivitas **keberlangsungan bisnis**, **sistem informasi**, dan manajemen **data** terstruktur dan tidak terstruktur dan peningkatan **proses bisnis** guna meningkatkan kemampuan dan kinerja organisasi. *Understand the concepts and methods of auditing, activity and business continuity, certainty in information systems in general, and structured and unstructured data management, as well as in-depth information in processes that can improve organizational capability and performance*

	KN02	Memahami konsep-konsep dan metode-metode bagaimana **mengelola kompleksitas sistem**, mengimplementasi pengembangan solusi **infrastruktur teknologi informasi** yang tepat, ramah lingkungan, sinergis dengan strategi organisasi, dan memenuhi peraturan serta standar industri. *Understand the concepts and methods of managing system complexity, and implementation of solutions development in information technology infrastructure that is appropriate, environmentally friendly, and socially aligned with the organization's strategy and responsibilities and meets the legal and regulatory requirements and industry standards*
Keterampilan umum *Generic skills*	**GS01**	Mampu mengembangkan kemampuan **berfikir logis, kritis, sistematis, dan kreatif** melalui **penelitian ilmiah**, penciptaan desain atau karya seni sesuai dengan peta penelitian melalui pendekatan **interdisiplin atau multidisiplin**, serta mendokumentasi, menyimpan, dan mengamankan data, melakukan validasi data dan **mencegah plagiarisasi**. *Able to develop logical, critical, systematic, and creative thinking through scientific research, the creation of designs or works of art in accordance with the research map developed through an interdisciplinary or multidisciplinary approach as well as documenting, storing, securing, and rediscovering research data in order to ensure validity and prevent plagiarism*
	GS02	Mampu mencari dan mengelola **ide-ide, hasil pemikiran, dan argumentasi** ilmu pengetahuan berdasarkan **etika akademik**, serta mengembangkan **jaringan kerja-sama** penelitian maupun komunitas. *Able to arrange ideas, results of thinking, and scientific arguments responsibly and based on academic ethics, as well as manage, develop and maintain networks with colleagues, colleagues within research institutions and communities and the wider community.*
	GS03	Mampu melakukan **validasi/penelitian akademik** sesuai bidang keahlian dan membuat keputusan penyelesaian masalah dalam pengembangan ilmu pengetahuan dan teknologi berdasarkan nilai-nilai kemanusiaan dan studi analisis/eksperimen informasi dan data.

		Able to carry out academic validation or research according to their field of expertise and make decisions in the context of solving problems in developing science and technology that pay attention to and apply humanities values based on analytical or experimental studies of information and data.
	GS04	Mampu meningkatkan **kemampuan belajar mandiri dan pengembangan diri** guna menghadapi kompetisi di **level nasional dan internasional** dengan mengimplementasikan prinsip -prinsip keberlangsungan **pengembangan pengetahuan dan mengimplementasikan teknologi informasi dan komunikasi di dunia kerja**. *Able to improve the capacity of learning independently and develop themselves to compete at national and international levels by implementing the principle of sustainability in developing knowledge and implementing information and communication technology in the context of their work.*
Keterampilan khusus *Specific skills*	**SS01**	**Mengelola operasional bisnis, asset dan sumber daya** organisasi guna **kehandalan dan keberlangsungan** bisnis organisasi. *Maintain continued business operation and availability of resources, assets and information to enable business resilience.*
	SS02	Mengelola **manajemen data** organisasi secara efektif mencakup semua siklus hidup data dari pembuatan hingga penghapusan guna mendukung pencapaian tujuan organisasi. *Sustain effective management of the enterprise data assets across the data life cycle, from creation to retirement, to achieve enterprise goals and objectives.*
	SS03	Menyusun sebuah **arsitektur enterprise** yang bersifat umum yang memungkinkan organisasi melakukan operasional bisnisnya sesuai standar, responsive, dan efisien serta mencapai **tujuan strategisnya**. *Establish a common enterprise architecture to enable a standard, responsive and efficient delivery of operational and strategic objectives.*
	SS04	Merumuskan dan menyediakan **produk-produk digital dan layanan** yang agile dan dapat terus berkembang serta mendukung strategi dan tujuan operasional organisasi.

		Establish agile and scalable delivery of digital products and services capable of supporting enterprise strategic and operational objectives.

COURSES

Untuk dapat lulus, semua mahasiswa S2 Sistem Informasi ITS wajib mengambil dan lulus minimal 36 SKS.

To be able to graduate, all Master students of Information Systems are required to take and complete a minimum of 36 credits.

A. Mata kuliah /Courses

Mahasiswa S2 Sistem Informasi ITS harus mengambil dan lulus **8 mata kuliah wajib (27 SKS)** dan **3 mata kuliah pilihan (9 SKS)** yang didesain diselesaikan dalam waktu 4 semester namun dapat diselesaikan dalam waktu 3 semester. Berikut ini mata kuliah wajib dan mata kuliah pilihan.

*Students of Master of Information Systems program, ITS, must take and complete **8 compulsory courses (27 credits)** and **3 elective courses (9 credits)** which is designed to be completed in 4 semesters, but it is possible to be completed within 3 semesters. The following are the compulsory and elective courses.*

Mata Kuliah Wajib (Compulsory courses)

Semester I

Di Semester pertama, mahasiswa wajib mengambil **Paket Mata Kuliah Wajib** berupa 4 Mata Kuliah Wajib dengan total 12 SKS, yakni:

*In the first semester, the students are required to take **Compulsory Course Set** containing 4 compulsory courses with a total of 12 credits:*

No	Code	Obligatory course	Credit(s)
1	IS185101 **(ITSI)**	Infrastruktur Teknologi dan Sistem Informasi *Technology Infrastructure & Information Systems*	3
2	IS185102 (PPS)	Pengembangan dan Penerapan Sistem *System Development & Deployment*	3
3	IS185103 (MOSI)	Manajemen dan Operasional Sistem Informasi *Information Systems Operation & Management*	3
4	IS185104 (MDI)	Manajemen Data dan Informasi *Data & Information Management*	3
		Total credit(s)	**12**

Semester II

Di semester II, Mahasiswa dapat mengambil Mata Kuliah sebagai berikut:

In the second semester, the students can take subjects as follows:

No	Code	Obligatory course	Credit(s)
1	IS185201 (**MP**)	**Metode Penelitian** *Research Methodology*	2
2	IS185202 (**MSSI**)	**Manajemen Strategis Sistem Informasi** *Information Systems Strategic Management*	3
3	IS18590XX	**1 Mata Kuliah Pilihan** *1 Elective Courses*	3
		Total credit(s)	**8**

Di semester II ini mahasiswa direkomendasikan mengambil 2 Mata Kuliah Wajib yakni **Metode Penelitian** dan **Manajemen Strategis Sistem Informasi**. Melalui mata kuliah Metode Penelitian, mahasiswa S2 telah dipaksa untuk mulai menemukan topik penelitian dan memilih metode penelitian yang paling tepat. Di Semester II ini mahasiswa juga sudah harus memilih calon Dosen Pembimbing Tesisnya. Khusus bagi mahasiswa yang ingin lulus dalam 3 Semester disarankan menambah mengambil Mata Kuliah **Seminar Proposal Tesis** di Semester II ini.

*In the second semester, the students are recommended to take 2 Obligatory courses: **Research Methods** and **Information Systems Strategic Management**. By taking the Research Methods course, students are encouraged to find their Thesis research topics and identify the correct research methods. In this semester, students should select a research supervisor. For students who want to graduate in 3 semesters, they may also take **Thesis Proposal Seminar** in the second semester.*

SEMESTER III

Di semester III, Mahasiswa dapat mengambil Mata Kuliah sebagai berikut:

In the third semester, the students can take the following courses:

No	Code	Obligatory course	Credit(s)
1	IS185301 (**SP**)	**Seminar Proposal Tesis** *Thesis Seminar / Proposal*	2
2	IS18590XX	**2 Mata Kuliah Pilihan** *2 Elective Courses*	6
		Total credit(s)	**8**

Bagi mahasiswa yang telah mengambil dan lulus mata kuliah Seminar Proposal Tesis di Semester II, maka di Semester III ini dapat mengambil mata kuliah Tesis.

For students who have taken and passed the Thesis Proposal Seminar course in the 2nd Semester, they may take Thesis course in the 3rd Semester.

SEMESTER IV

Di semester IV, mahasiswa umumnya hanya tinggal mengambil mata kuliah Tesis.

In the forth semester, the students generally just take the Thesis course.

No	Code	Obligatory course	Credit(s)
1	IS185401 (**T**)	**Tesis** *Thesis*	8
		Total credit(s)	**8**

Khusus bagi mahasiswa yang **mengulang** Mata kuliah Seminar Proposal Tesis (karena di semester sebelumnya belum selesai pengerjaan proposal, gagal di ujian Proposal tesis, atau penyebab lain), maka di **Semester III** mahasiswa dapat mengambil mata kuliah Seminar Proposal Tesis **bersamaan** dengan mata kuliah Tesis dengan kewajiban **harus sudah maju dan lulus Sidang Proposal Tesis paling lambat minggu ke-9**. Apabila tidak maka **dosen wali akan men-drop mata kuliah Tesis** di semester tersebut.

*Especially for students who are **re-taking** the Thesis Proposal Seminar course (due to some circumstances: The proposal has not completed, Failed the thesis proposal exam, or other causes), the students can take the Thesis Proposal Seminar course **along with** the Thesis course **in the third semester** as they **must have presented and passed the Thesis Proposal Session no later than the nineth week of academic calendar**. If they failed, **the supervisor will drop the Thesis course** on that semester.*

Mata Kuliah Pilihan (*The elective courses*)

Mata kuliah pilihan sudah dapat diambil mahasiswa S2 Sistem Informasi ITS **mulai Semester ke-2**. Mahasiswa wajib mengambil **2 (dua) mata kuliah pilihan sesuai dengan Lab Riset Dosen Pembimbing Utama Tesisnya** dan **1 (satu) mata kuliah pilihan lainnya bebas boleh dari Lab mana saja**.

*The elective courses can be taken **starting in the second semester**. Students are required to take **2 (two) elective courses in accordance with the Research lab of their main thesis supervisor** and **1 (one) elective course is selected by the student himself from any labs**.*

No	Lab	Code	Elective course	Profile supported
1	MSI	IS185901 (**MES**)	**Topik dalam Manajemen e-Government & SmartCity** *Topics in the e-Government and Smart City Government*	• Business Information Manager • Project manager • Business Analyst • ICT Consultant
		IS185902 (**TKA**)	**Topik dalam Tata Kelola dan Audit Sistem Informasi** *Topic in Information Systems Audit and Governance*	

		IS185903 (**MIP**)	**Topik Dalam Manajemen Investasi dan Produktivitas SI/TI** *Topics in Information Systems and Technology Investment and Productivity*	
2	ADDI	IS185904 (**TD**)	**Topik Dalam Teknologi Database** *Topics in Database Technology*	• Enterprise Architect • Systems Analyst • ICT Consultant
		IS185905 (**ID**)	**Topik Dalam Integrasi Data** *Topics in Data Integration*	
		IS185906 (**SW**)	**Topik Dalam Semantic Web** *Topics in Semantic Web*	
3	RDIB	IS185907 (**PDAB**)	**Topik Dalam Penggalian Data dan Analitika Bisnis** *Topics in Data Mining and Business Analytics*	• System Analyst • Business Analyst
		IS185908 (**OSM**)	**Topik Dalam Optimasi Dan Sains Manajemen** *Topics in Optimization and Management Science*	
		IS185909 (**SPK**)	**Topik Dalam Sistem Pendukung Keputusan** *Topics in Decision Support Systems*	
4	SE	IS1859010 (**PSS**)	**Topik Dalam Pemodelan dan Simulasi Sistem** *Topics in Modelling and Simulation Systems*	• Business Analyst • System Analyst • Enterprise Architect
		IS1859011 (**SDA**)	**Topik Dalam Sistem Dinamik dan Aplikasinya di Berbagai Bidang** *Topics in System Dynamics and Its Application in Various Fields*	
		IS1859012 (**SE**)	**Topik Dalam Sistem Enterprise** *Topics in Enterprise Systems*	
5	IKTI	IS1859013 (**ATIK**)	**Topik Dalam Arsitektur Teknologi Informasi untuk Korporat** *Topics in Corporate Information Technology Architecture*	• Enterprise Architect • ICT Consultant
		IS1859014 (**KSJ**)	**Topik Dalam Keamanan Sistem dan Jaringan** *Topics in System and Network Security*	

		IS1859015 (**PST**)	**Topik Dalam Pengembangan Sistem Tertanam** *Topic in Embedded System Development*	

Untuk **lulus** dari Program S2 Sistem Informasi, mahasiswa harus memenuhi baku mutu sebagai berikut:

1) Telah menyelesaikan semua beban studi minimal **36 sks**, termasuk tesis dalam waktu **maksimal 8 (delapan) semester**.
2) Memiliki indeks prestasi kumulatif **(IPK) > 3,00**, **tanpa nilai D dan E**, dan **nilai C maksimal 20%** dari jumlah sks yang dipersyaratkan.
3) Telah **mempublikasikan hasil penelitian yang berkaitan dengan tesis** dalam makalah yang telah diterbitkan di **jurnal ilmiah nasional terakreditasi**, atau telah diterima di **jurnal internasional**, atau telah **dipresentasikan secara oral di seminar internasional bereputasi** (publikasi harus terkait dengan Tesis yang dikerjakan, dilakukan dalam periode pengerjaan proposal Tesis atau Tesis, dan penulis adalah Mahasiswa dan Dosen Pembimbing Tesis). Seminar internasional bereputasi adalah seminar internasional yang terindeks, diikuti oleh lebih dari 5 negara, dan akan dipublikasikan pada prosiding terindeks (SCOPUS atau Web of Science).
4) Telah memenuhi persyaratan kemampuan bahasa Inggris dengan nilai **TEFL ≥ 477**. Nilai TEFL (hasil tes di UPT Bahasa ITS) yang diperoleh ketika tes masuk pada jenjang yang sama dapat diakui sebagai syarat lulus

*To **graduate** from the Master of Information Systems Program, students must meet the following quality standards:*

1) *Have completed all study loads of at least **36 credits**, including a thesis within **a maximum of 8 (eight) semesters**.*
2) *Have a cumulative grade point average **(GPA) > 3.00**, **without D and E scores**, and **a maximum C scores in 20%** of the required credit.*
3) *Have **published their research findings that related to their thesis** in one or more papers that have been **published in accredited national or international scientific journals**, or have been **presented orally at reputable international seminars** (the published paper must be related to the thesis that being worked on, within the period of Thesis or Thesis proposal, and the authors should be the student and the thesis supervisor). The criteria of a reputable international seminar are an indexed international seminar, attended by participants from more than 5 different countries, and will be published in indexed proceedings (SCOPUS or Web of Science).*
4) *Have met the requirements for English language proficiency test with a **TEFL score ≥ 477**. The TEFL score (test results can be checked in the Center for Languages and Cultures of ITS) obtained at the admission test can be used for the graduation requirement.*

SYLLABUS

1) *Data and Information Management* (Manajemen Data dan Informasi) 43
2) *Information Systems Strategic Management* (Manajemen Strategis Sistem Informasi) 48
3) *Information Systems and Technology Infrastructure* (Infrastruktur Teknologi dan Sistem Informasi).....52
4) *Research Method* (Metode Penelitian) 56
5) *Systems Development and Implementation* (Pengembangan dan Penerapan Sistem Informasi) 61
6) *Information Systems Management and Operation* (Manajemen dan Operasional Sistem Informasi) 67
7) *Topics in e-Government & Smart City Management* (Topik Dalam Manajemen e-Government dan Smart City) 71
8) *Topics in Information Systems Audit and Governance* (Topik Dalam Tata Kelola dan Audit Sistem Informasi) 77
9) *Topics in Information Technology Investment and Productivity Management* (Topik Dalam Manajemen Investasi dan Produktivitas SI/TI) 82
10) *Topics in Database Technology* (Topik Dalam Teknologi Database) 88
11) *Topics in Data Integration* (Topik Dalam Integrasi Data) 92
12) *Topics in Semantic Web* (Topik Dalam Semantic Web) 96
13) *Topics in Data Mining and Business Analytics* (Topik Dalam Penggalian Data dan Analitika Bisnis) 100
14) *Topics in Optimization and Management Science* (Topik Dalam Optimasi dan Sains Manajemen) 105
15) *Topics in Decision Support Systems* (Topik Dalam Sistem Pendukung Keputusan) 109
16) *Topics in Modelling and Simulation Systems* (Topik Dalam Pemodelan dan Simulasi Sistem) 113
17) *Topics in System Dynamics and Its Application in Various Fields* (Topik Dalam Sistem Dinamik dan Aplikasinya di Berbagai Bidang) 119
18) *Topics in Enterprise Systems* (Topik Dalam Sistem Enterprise) 124
19) *Topics in Information Technology Architecture for Corporate* (Topik Dalam Arsitektur Teknologi Informasi untuk Korporat) 129
20) *Topics in System and Network Security* (Topik Dalam Keamanan Sistem dan Jaringan) 133
21) *Topics in Embedded Systems* (Topik Dalam Pengembangan Sistem Tertanam) 138
22) *Seminar / Thesis Proposal* (Seminar / Proposal) 142
23) *Thesis* (Tesis) 145

MASTER OF INFORMATION SYSTEMS CURRICULUM SYLLABUS 2018			
	Course **Data and Information Management**		
	Code: IS185104	CREDIT: 3	Semester: 1
Release: 00			

Course Description

Kompetensi lulusan yang diharapkan setelah mengikuti mata kuliah ini adalah lulusan dapat menjadi kontributor yang efektif dalam proses yang dapat meningkatkan kemampuan organisasi untuk mencapai tujuan dengan menggunakan data, baik yang terstruktur maupun tidak struktur, dan informasi secara efektif.

Upon completion of the course, graduates are expected to contribute effectively in the process that can improve organization's capability to achieve its goal through effective use of data, both structured and unstructured, as well as information.

Expected Learning Outcome

- Mampu menjabarkan konsep teoretis dan metode pengelolaan data terstruktur dan tidak terstruktur serta informasi secara mendalam dalam proses yang dapat meningkatkan kemampuan organisasi mencapai tujuannya.
- Menganalisis kebutuhan organisasi dan menentukan bagaimana kebutuhan ini dapat ditangani dengan data, informasi dan solusi manajemen konten serta mengelola teknologi pengelolaan data dan informasi.
- Mengidentifikasi, membuat dan mengelola kebijakan dan proses organisasi terkait manajemen data dan informasi dengan menyeimbangkan kebutuhan multidimensi seperti kebutuhan hukum dan perundangan, pertimbangan etis dan implikasi kebutuhan teknologi, kebutuhan bisnis organisasi, kualitas data dan kebutuhan beroperasi pada lingkungan internasional.

- *Implementing concepts and method to process structured and unstructured data and information in a process that can improve organization capability to achieve its goals.*
- *Analyzing the needs of an organization and determine how those needs can be best addressed with data, information, and content management solutions.*
- *Identifying, creating, and managing organizational policies and processes related to data and information management by balancing multidimensional requirements, such as legal and regulatory requirements, ethical considerations and implications of technology decisions, organizational business requirements, data quality issues, and requirements of operating in an international environment.*

Course Learning Outcome

Ketrampilan Khusus : ● Menangkap dan menstrukturisasi data dan informasi degan teknik pemodelan konseptual yang tepat.

	Course		
	Data and Information Management		
	Code: IS185104	CREDIT: 3	Semester: 1

Release: 00

- Mengembangkan representasi data level logis berdasarkan model konseptual.
- Mengimplementasikan solusi basis data untuk melayani sistem yang terdiri dari banyak aplikasi.
- Menggunakan manipulasi data dan bahasa retrieval kontemporer secara efektif.
- Memilih teknologi manajemen data yang tepat bersasarkan kebutuhan domain.
- Mengamankan data domain dan melindungi privasi user dan hak kekayaan intelektual organisasi.
- Membuat infrastruktur scalable untuk data dalam jumlah besar menggunakan teknologi parallel dan terdistribusi.
- Mengintegrasikan dan menyiapkan data yang ditangkap dari berbagai sumber untuk keperluan analitical.

Specific Skills :

- *Capturing and structurizing data and information with the right conceptual modelling techniques.*
- *Developing logical level representation based on conceptual model.*
- *Implementing database solution to serve systems with multiple applications.*
- *Using data manipulation and contemporary retrieval language effectively.*
- *Choosing the right data management technology according to the needs of the domain.*
- *Securing domain data and protect user privacy and intellectual property rights of the organization.*
- *Creating a scalable infrastructure for large amounts of data using parallel and distributed technologies.*
- *Integrating and preparing data captured from various sources for analytical purposes.*

Pengetahuan :

- Memahami dasar-dasar relasional, sistem database berorientasi objek, dan didistribusikan termasuk: model data, arsitektur database, dan manipulasi database.
- Menguasai teori dan teknik dalam mengembangkan aplikasi database dan mampu menunjukkan kemampuan untuk membangun database menggunakan DBMS (Access, MySql, dsb).

MASTER OF INFORMATION SYSTEMS CURRICULUM SYLLABUS 2018			
	Course **Data and Information Management**		
	Code: IS185104	CREDIT: 3	Semester: 1
Release: 00			

Knowledge	:	● *Understanding the basics of relational, object-oriented, and distributed database systems, including: data models, database architecture, and database manipulation.* ● *Mastering the theory and techniques in developing database applications and being able to demonstrate the ability to build databases using a DBMS (Access, MySql, etc.).*
Sikap	:	● Bekerja sama untuk dapat memanfaatkan semaksimal mungkin potensi yang dimiliki. ● Menginternalisasi nilai, norma, dan etika akademik
Attitude	:	● *Working together to make the most of their potential.* ● *Internalizing academic values, norms, and ethics.*

Specific Learning Outcome

Kognitif	:	● Mahasiswa mampu menjelaskan konsep data dan informasi; siklus hidup manajemen data dan informasi. ● Mahasiswa mampu menjelaskan *state-of-the-art* teknologi manajemen data dan informasi yang terbaru. ● Mahasiswa mampu memilih teknologi manajemen data dan informasi yang tepat sesuai dengan kebutuhan organisasi. ● Mahasiswa mampu menerapkan peraturan & UU yang berlaku dalam proyek
Cognitive	:	● *Students are able to explain the concept of data and information; data and information management life cycle.* ● *Students are able to explain the latest state-of-the-art data and information management technology.* ● *Students are able to choose the right data and information management technology according to the needs of the organization.* ● *Students are able to apply applicable regulations & laws in the project*
Psikomotor	:	

	Course		
	Data and Information Management		
	Code: IS185104	CREDIT: 3	Semester: 1

Release: 00

- Mampu menangkap dan melakukan strukturisasi kebutuhan data dan informasi dengan mengggunakan teknik pemodelan konseptual (*conceptual data model*) yang tepat.
- Mampu membangun *logical data model* dari *conceptual data model*.
- Mampu mengimplementasikan solusi database untuk sistem yang terdiri dari sejumlah aplikasi.
- Mampu menggunakan *data manipulation and retrieval language* secara efektif.

Psychomotor :

- *Being able to capture and structurize data and information requirements by using appropriate conceptual data modeling techniques.*
- *Being able to build logical data model from conceptual data model.*
- *Being able to implement database solutions for systems consisting of a number of applications.*
- *Being able to use data manipulation and retrieval language effectively.*

Afektif :

- Mahasiswa mampu & mau berperilaku jujur
- Mahasiswa mampu & mau berperilaku komunikatif
- Mahasiswa mampu & mau tunduk pada peraturan & perundangan yang berlaku
- Mahasiswa mampu & mau berperilaku bertanggung jawab

Affective :

- *Students are able & willing to behave honestly*
- *Students are able & willing to behave communicatively*
- *Students are able & willing to comply with applicable laws & regulations*
- *Students are able & willing to behave responsibly*

Course Subjects

1. **Konsep dan Arsitektur Sistem Basis Data**: Kelebihan sistem manajemen basis data, Model Data, Artsitektur
2. **Conceptual Data Model**: Entity Relational Diagram (ERD) Model, Enhanced Entity Relational Diagram (EERD) model.
3. **Logical Data Model**: Relational Data Model, Basic SQL: data definition language (DDL), data manipulation language (DML); Advanced SQL: Complex query, Indexes, Constraints and Trigger, Transactions, Views, Authorization, Recursion in SQL.
4. **Database Programming:** Manipulating Data With Python.
5. **Database Design and Theories**: Normalization, Boycodd

	Course		
	Data and Information Management		
	Code: IS185104	CREDIT: 3	Semester: 1

Release: 00

6. **Emerging Technologies in Data Management and Content Management:** Distributed Database, NOSQL System, Big Data

1. ***Database System Concepts and Architecture****: Advantages of database management systems, Data Models, Architecture*
2. ***Conceptual Data Model****: Entity Relational Diagram (ERD) Model, Enhanced Entity Relational Diagram (EERD) model.*
3. ***Logical Data Model****: Relational Data Model, Basic SQL: data definition language (DDL), data manipulation language (DML); Advanced SQL: Complex queries, Indexes, Constraints and Triggers, Transactions, Views, Authorization, Recursion in SQL.*
4. ***Database Programming****: Manipulating Data With Python.*
5. ***Database Design and Theories****: Normalization, Boycodd*
6. ***Emerging Technologies in Data Management and Content Management****: Distributed Database, NOSQL System, Big Data*

Main References

1. Elmasri, Ramez, and Shamkant B. Navathe. **Fundamentals of database systems**. 7th Edition. Pearson, 2016.

Additional References

1. Ramakrishnan, R. and Gehrke, J., 2000. **Database management systems**. McGraw Hill.

MASTER OF INFORMATION SYSTEMS CURRICULUM SYLLABUS 2018				
	Course **Information Systems Strategic Management**			
	Code: IS185202	CREDIT: 3	Semester: 1	
Release: 00				

Course Description

Manajemen Strategis Sistem Informasi mencakup kompetensi yang memungkinkan lulusan memiliki kemampuan untuk memformulasikan kebijakan kebijakan strategis Sistem Informasi yang mendukung strategi bisnis organisasi, melalui penggunaan tools dan teknik-teknik analisis pengembangan rencana strategis Sistem Informasi (SI).

Information Systems Strategic Management includes competencies that enable graduates to have the ability to formulate Information System strategic policies that support the organization's business strategy, through the use of analytical tools and techniques for developing Information Systems (IS) strategic plans.

Expected Learning Outcome

Lulusan akan mampu untuk:

- Mejelaskan konsep pengembangan solusi TI
- Menganalisis kompleksitas sistem dan teknologi informasi
- Menyelaraskan sistem dan teknologi informasi dengan strategi bisnis
- Menerapkan konsep teoretis dan metode untuk mengembangkan dan mengimplementasikan rencana jangka panjang untuk merancang, menghasilkan, dan menggunakan SI untuk mencapai tujuan strategis organisasi.
- Menganalisis efek dan dampak SI terhadap organisasi, membuat dan mengelola mekanisme pengawasan dimana organisasi mengevaluasi, mengarahkan dan memonitor organisasi TI dan menciptakan praktek untuk meminimalkan dampak lingkungan dan merencanakan kelangsungan hidup perusahaan dalam jangka panjang.
- Memahami konsep dan metode mengelola kompleksitas sistem dan teknologi informasi serta menyelaraskannya dengan strategi organisasi secara umum
- Mengidentifikasi dan menerapkan pendekatan formal untuk pengembangan solusi TI, pengadaan TI, operasional TI, manajemen sumber daya TI, dan penerapan TI lainnya termasuk: Memastikan keselamatan dan menghindari bahaya kesehatan untuk pengaturan kontrak dengan pihak eksternal; Memastikan bahwa privasi dan integritas memandu semua praktik TI; Menafsirkan dan mematuhi persyaratan legislatif.

Graduates will be able to:

Course

Information Systems Strategic Management

Code: IS185202	CREDIT: 3	Semester: 1

Release: 00

- *Explain the concept of IT solution development*
- *Analyze the complexity of information systems and technology*
- *Align information systems and technology with the organization's business strategy*
- *Implement concepts and methods to develop and implement long-term plans for designing, delivering, and using organizational information systems to achieve strategic domain goals and objectives.*
- *Analyze the effect and impact of IS on industries, firms, and institutions; create and manage the oversight mechanisms by which an organization evaluates, directs, and monitors organizational IT and establish practices for minimizing environmental impacts and planning for long-term firm viability.*
- *Describe concepts and methods to manage the complexity of information systems and technologies and fitting these with the organization's strategy.*
- *Apply sustainable approaches for IT solutions development, IT procurement, IT operations, IT resources management, and other IT practices including: Ensure safety and avoid health hazards for contract arrangements with external parties; Ensure that privacy and integrity guide all IT practices; Interpret and comply with legislative requirements.*

Course Learning Outcome

Ketrampilan Khusus :
- Mampu melakukan analisis strategis SI
- Mampu mengelola strategi pengadaan SI/TI
- Mampu melakukan perencanaan strategis SI
- Mampu merencanakan dan mengimplementasikan tata kelola SI
- Mampu merencanakan dan meningkatkan keberlanjutan

Specific Skills :
- *Able to perform IS strategic analysis*
- *Able to manage IS/IT procurement strategy*
- *Able to do IS strategic planning*
- *Able to plan and implement IS governance*
- *Able to plan and improve sustainability*

Ketrampilan Umum :
- Mampu menjabarkan aktivitas bisnis organisasi yang menggunakan TI
- Mampu menjelaskan struktur aktivitas bisnis dalam organisasi
- Mampu menjelaskan komponen-komponen proses bisnis
- Mampu menjabarkan bagaimana IT mendukung pelaksanaan aktivitas-aktivitas bisnis

	Course **Information Systems Strategic Management**	
	Code: IS185202 / CREDIT: 3 / Semester: 1	

Release: 00

- Mampu mengembangkan konsep keberlanjutan bisnis

General Skills	:	• *Able to describe the organization's business activities that use IT* • *Able to explain the structure of business activities in the organization* • *Able to explain the components of business processes* • *Able to describe how IT supports the implementation of business activities* • *Able to develop the concept of business sustainability*
Pengetahuan	:	• Memiliki Knowledge tentang sistem dan layanan teknologi informasi • Memiliki Knowledge tentang infrastruktur informasi
Knowledge	:	• *Have knowledge about information technology systems and services* • *Have Knowledge about information infrastructure*
Sikap	:	• Menjunjung tinggi nilai kemanusiaan dalam menjalankan tugas berdasarkan agama, moral, dan etika; • Taat hukum dan disiplin dalam kehidupan bermasyarakat dan bernegara; • Menunjukkan Attitude bertanggungjawab atas pekerjaan di bidang keahliannya secara mandiri
Attitude	:	• *Uphold human values in carrying out their duties based on religion, morals, and ethics;* • *Obey the law and discipline in the life of society and the state;* • *Demonstrate an attitude of being responsible for work in their area of expertise independently*

Specific Learning Outcome

Kognitif	:	• Mahasiswa mampu memahami konsep teoretis dan metode untuk formulasi manajemen strategis sistem informasi • Mahasiswa mampu memahami kerangka strategi sistem informasi • Mahasiswa mampu memahami lingkungan internal dan eksternal yang mempengaruhi formulasi manajemen strategis sistem informasi • Mahasiswa mampu merencanakan dan mengimplementasikan manajemen strategis sistem informasi

MASTER OF INFORMATION SYSTEMS CURRICULUM SYLLABUS 2018				
	Course **Information Systems Strategic Management**			
	Code: IS185202	CREDIT: 3	Semester: 1	
Release: 00				

Cognitive	:	● *Students are able to understand theoretical concepts and methods for the formulation of strategic management of information systems* ● *Students are able to understand the strategic framework of information systems* ● *Students are able to understand the internal and external environment that affect the formulation of strategic management of information systems* *Students are able to plan and implement strategic management of information systems*
Psikomotor	:	● Mahasiswa mampu melakukan analisis strategis SI ● Mahasiswa mampu membuat perencanaan strategis SI ● Mahasiswa mampu menyelarasan sistem dan teknologi informasi terhadap strategi bisnis organisasi ● Mahasiswa mampu mengembangkan konsep pengembangan solusi TI ● Mahasiswa mampu mengelola strategi pengembangan sistem informasi
Psychomotor	:	● *Students are able to carry out strategic analysis of IS* ● *Students are able to make IS strategic planning* ● *Students are able to align systems and information technology to the organization's business strategy* ● *Students are able to develop the concept of developing IT solutions* ● *Students are able to manage information system development strategies*
Afektif	:	● Mahasiswa mampu & mau berprilaku jujur ● Mahasiswa mampu & mau berprilaku komunikatif ● Mahasiswa mampu & mau tunduk pada peraturan & perundangan yang berlaku ● Mahasiswa mampu & mau berprilaku bertanggung jawab
Affective	:	● *Students are able & willing to behave honestly* ● *Students are able & willing to behave communicatively* ● *Students are able & willing to comply with applicable laws & regulations*

Course

Information Systems Strategic Management

Code: IS185202	CREDIT: 3	Semester: 1

Release: 00

- *Students are able & willing to behave responsibly*

Course Subjects

- Peran Sistem Informasi dari sudut pandang strategis: Pengertian dan model awal SI, Strategi SI.
- Konsep strategi bisnis dan implikasinya terhadap strategi SI: Framework perencanaan strategis, Proses, teknik dan sarana perencanaan bisnis.
- Explorasi Jurnal Internasional terkait manajemen strategis SI: resume jurnal, review terhadap konten jurnal, penelitian yang bisa dikembangkan dari jurnal yang dieksplorasi.
- Pengembangan strategi SI yang efektif: Permasalahan dan batasan, Framework strategi SI/TI dan pendekatannya.
- Analisis strategi SI: Teknik untuk interprestasi dan analisa situasi saat ini, Evaluasi Gap antara eksisting dengan kebutuan SI, Analisis rantai nilai (value chain), Sistem informasi dan rantai nilai, Menentukan strategi bersaing organisasi.
- Penentuan strategi SI perusahaan: Teknik perencanaan strategis dan hubungannya, Bagaimana SI dapat mempengaruhi strategi.
- Pengelolaan portofolio aplikasi: Klasifikasi portofolio aplikasi, Strategi manajemen dan pengaplikasiannya pada portofolio aplikasi.
- Pengorganisasian dan ketersediaan sumber daya SI; Strategi pengorganisasian manajemen SI, Peningkatan kontribusi fungsi SI.
- Pengelolaan investasi SI: Penentuan kebijakan investasi dan prioritas, Penaksiran dan pengelolaan resiko investasi.

- *The role of Information Systems from a strategic point of view: Understanding and early models of IS, IS Strategy.*
- *The concept of business strategy and its implications for IS strategy: Strategic planning framework, Business planning processes, techniques and tools.*
- *International Journal Exploration related to IS strategic management: journal resume, review of journal content, research that can be developed from the explored journal.*
- *Development of an effective IS strategy: Problems and constraints, IS/IT strategy framework and approaches.*
- *IS strategy analysis: Techniques for interpreting and analyzing the current situation, Evaluation of the gap between existing and IS needs, Value chain analysis, Information systems and value chains, Determining the organization's competitive strategy.*
- *Determining the company's IS strategy: Strategic planning techniques and their relationships, How IS can influence strategy.*

	Course		
	Information Systems Strategic Management		
	Code: IS185202	CREDIT: 3	Semester: 1

Release: 00

- *Application portfolio management: Application portfolio classification, Management strategy and its application to the application portfolio.*
- *Organization and availability of IS resources; IS management organizing strategy, Increasing the contribution of the IS function.*
- *IS investment management: Determination of investment policies and priorities, assessment and management of investment risk.*

Main References

1. John Ward, Strategic Planning for Information Systems, John-Wiley, 2002
2. Anita Cassidy, A Practical Guide to Information Systems Strategic Planning, Second Edition 2nd Edition, 2006.
3. Clive Finkelstein, An Introduction to Information Engineering: From Strategic Planning to Information Systems, 2014.
4. Joe Peppard and John Ward, The Strategic Management of Information Systems: Building a Digital Strategy, 2016.

Additional References

1. Jurnal – Jurnal internasional dan artikel terkait “Strategi dan Kebijakan SI/TI”. *International journals and articles related to “IS/IT Strategy and Policy”.*

2. Tozer, Edwin. Strategic IS/IT Planning, Butterworth-heinemann 1996

MASTER OF INFORMATION SYSTEMS CURRICULUM SYLLABUS 2018			
	Course **Information Systems and Technology Infrastructure**		
	Code: IS185101	CREDIT: 3	Semester: 1
Release: 00			

Course Description

Pada era saat ini, komputer dan teknologi komunikasi telah merambah kantor dan rumah. Organisasi mendistribusikan tanggung jawab teknologi ke seluruh level manajemen dan berbagai lokasi geografis. Hal ini menyebabkan seluruh manager mulai dari supervisor sampai CEO akan berhadapan dengan teknologi informasi dalam kehidupan sehari-hari. Organisasi akan memiliki peluang untuk lebih efisien dan kompetitif. Dengan demikian perlu untuk membekali mahasiswa agar nantinya dapat memainkan peran aktif dalam pengembangan system yang nantinya akan mempengaruhi produktifitas dan kompeteitif organisasinya. Materi akan meliputi pengenalan terhadap infrastruktur IT; antara lain komputer, sistem arsitektur serta jaringan komunikasi. Termasuk memberi penekanan pada layanan dan kemampuan yang dimungkinkan dengan solusi infrastruktur IT, dan keberlangsungan bisnis.

In the current era, computers and communication technology have penetrated the office and home. The organization distributes technology responsibilities across management levels and across geographic locations. This causes all managers from supervisors to CEOs to be faced with information technology in everyday life. Organizations will have opportunities to be more efficient and competitive. Thus it is necessary to equip students so that later they can play an active role in system development which will affect the productivity and competitiveness of their organizations. Materials will include an introduction to IT infrastructure; including computers, system architecture and communication networks. This includes emphasizing the services and capabilities enabled by IT infrastructure solutions, and business continuity.

Expected Learning Outcome

Lulusan akan mampu untuk:

- Mengidentifikasi data dan alternatif-alternatif pilihan manajemen teknologi informasi yang paling sesuai berdasarkan kebutuhan informasi organisasi.
- Mampu menjabarkan berbagai aktivitas organisasi dalam menggunakan teknologi informasi untuk meningkatkan cara aktivitas-aktivitas bisnis tersebut disusun dan dilakukan.
- Merancang jaringan komunikasi terintegrasi, menspesifikasikan kebutuhan untuk solusi jaringan skala besar, melakukan perancangan arsitektur implementasi untuk solusi sistem dan pemrosesan data organisasi dengan sumber daya internal ataupun eksternal.

MASTER OF INFORMATION SYSTEMS CURRICULUM SYLLABUS 2018			
	Course **Information Systems and Technology Infrastructure**		
	Code: IS185101	CREDIT: 3	Semester: 1
Release: 00			

Graduates will be able to:

- *Identify the most appropriate data and alternative information technology management options based on the organization's information needs.*
- *Describe various organization activities in order to make use of information technologies to improve the way those activities are structured and are performed.*
- *Design integrated communication networks, specify requirements for large-scale network solutions, design an implementation architecture for organizational data processing and system solutions using both internal and external resources.*

Course Learning Outcome

Ketrampilan Khusus	:	● Merancang dan mengimplementasikan arsitektur untuk sistem manajemen konten ● Merancang, membangun dan memelihara arsitektur enterprise ● Mampu mengelola ● Mampu menggali & merancang kebutuhan ● Mampu mengintegrasikan data & mengtransformasikannya
Specific Skills	:	• *Design and implement the architecture for the content management system* • *Design, build and maintain enterprise architecture* • *Able to manage* • *Able to explore & design needs* • *Able to integrate data & transform it*
Ketrampilan Umum	:	● Mampu menjabarkan bagaimana IT mendukung pelaksanaan aktivitas-aktivitas bisnis ● Mengembangkan arsitektur informasi untuk organisasi ● Mengembangkan strategi kepastian informasi
General Skills	:	● *Able to describe how IT supports the implementation of business activities* ● *Develop an information architecture for the organization* ● *Develop an information security strategy*

Course

Information Systems and Technology Infrastructure

Code: IS185101	CREDIT: 3	Semester: 1

Release: 00

Pengetahuan :
- Memiliki Knowledge lingkungan bisnis (termasuk manajemen, organisasi, fungsi, proses bisnis) saat ini & masa datang
- Memiliki Knowledge lingkungan TI (termasuk proses, organisasi, aplikasi, infrastruktur, people TI, data) saat ini & masa datang
- Mampu menjelaskan komponen-komponen infrastruktur TI

Knowledge *:*
- *Have knowledge of the current & future business environment (including management, organization, functions, business processes)*
- *Have knowledge of current & future IT environment (including processes, organization, applications, infrastructure, IT people, data)*
- *Able to explain IT infrastructure components*

Specific Learning Outcome

Kognitif :
- Mahasiswa memahami rancangan arsitektur jaringan informasi yang efisien
- Mahasiswa mampu menangkap kebutuhan pengguna akan arsitektur jaringan informasi dari organisasi
- Mahasiswa memahami komponen-komponen infrastruktur TI

Cognitive *:*
- *Students understand the design of efficient information network architecture*
- *Students are able to capture user needs for the information network architecture of the organization*
- *Students understand the components of IT infrastructure*

Psikomotor :
- Mahasiswa mampu merancang jaringan komunikasi terintegrasi
- Mahasiswa mampu menspesifikasikan kebutuhan untuk solusi jaringan skala besar
- Mahasiswa melakukan perancangan arsitektur dan pemrosesan data organisasi

Psychomotor *:*
- *Students are able to design an integrated communication network*
- *Students are able to specify the need for large-scale network solutions*
- *Students do architectural design and organizational data processing*

Afektif :
- Mahasiswa mampu & mau berprilaku jujur

	Course	
	Information Systems and Technology Infrastructure	
	Code: IS185101 | CREDIT: 3 | Semester: 1	

Release: 00

- Mahasiswa mampu & mau berprilaku komunikatif
- Mahasiswa mampu & mau tunduk pada peraturan & perundangan yang berlaku
- Mahasiswa mampu & mau berprilaku bertanggung jawab

Affective :
- *Students are able & willing to behave honestly*
- *Students are able & willing to behave communicatively*
- *Students are able & willing to comply with applicable laws & regulations*
- *Students are able & willing to behave responsibly*

Course Subjects

- Menilai peran infrastruktur TI dalam organisasi modern
- Menganalisis pentingnya Networking: WAN, dan Mobile Technologies secara modern bisnis
- Evaluasi pendekatan untuk mengatur penyimpanan di tempat kerja
- Periksa praktik terbaik dan tren terkini di pusat data
- Merumuskan pendekatan menyeluruh perusahaan untuk mengamankan infrastruktur TI
- Dukungan pengelolaan infrastruktur TI organisasi melalui penggunaan IT
- Kontrol dan kerangka kerja manajemen layanan (COBIT, ITIL, dll.)
- Pembuatan rencana tingkat tinggi untuk memastikan kelangsungan bisnis
- Bandingkan dan kontrakkan tren saat ini seperti komputasi Grid, komputasi Cloud, dan
- Software sebagai Service (SaaS) dengan arsitektur tradisional
- Analisis dan manajemen kinerja sistem
- Mengelola perencanaan dan pembelian teknologi dan layanan infrastruktur TI
- Memahami analisis dan manajemen kinerja sistem
- Menganalisis perencanaan dan pembelian teknologi dan layanan infrastruktur TI

- *Assess the role of IT infrastructure in modern organizations*
- *Analyze the importance of Networking: WAN, and Mobile Technologies in modern business*
- *Evaluate approaches to managing storage in the workplace*
- *Check best practices and the latest trends in the data center*
- *Formulate a company-wide approach to securing IT infrastructure*
- *Support the management of the organization's IT infrastructure through the use of IT*
- *Service management frameworks and controls (COBIT, ITIL, etc.)*
- *High-level planning to ensure business continuity*

MASTER OF INFORMATION SYSTEMS CURRICULUM SYLLABUS 2018			
	Course **Information Systems and Technology Infrastructure**		
	Code: IS185101	CREDIT: 3	Semester: 1
Release: 00			

- *Compare and contract current trends such as Grid computing, Cloud computing and*
- *Software as a Service (SaaS) with traditional architecture*
- *System performance analysis and management*
- *Manage planning and purchasing of IT infrastructure technology and services*
- *Understand system performance analysis and management*
- *Analyze planning and purchasing of IT infrastructure technology and services*

Main References

1. Turban, E. & Volonino, L. (2011). Information technology for management. Improving strategic and operational performance. Hoboken, NJ. Wiley Publishing. ISBN: 978-0470-91680-3
2. Henry C. Lucas, Jr., Information Technology for Management, 2009

Additional References

Course

Research Method

Code: IS185201	CREDIT: 3	Semester: 1

Release: 00

Course Description

Matakuliah ini memberikan arahan bagi mahasiswa untuk mampu melakukan penelitian dengan menggunakan metode-metode yang relevan dalam bidang sistem informasi. Mahasiswa akan mempelajari kaidah-kaidah dalam melakukan riset kuantitatif maupun kualitatif untuk membantu mengembangkan pemahaman tentang: mereview literatur, mencermati fenomena, menggali dan mengolah data, merumuskan hasil, serta bagaimana brkontribusi dalam mengembangkan ilmu pengetahuan. Kemampuan untuk menuliskan proposal Tesis dan menyelesaikannya melalui sebuah penelitian adalah salah satu sasaran yang diinginkan mata kuliah Metodologi Penelitian.

This course provides guideline for students to conduct research using relevant research methods in information systems. Students will learn principles in quantitative and qualitative research to gain deeper understanding on reviewing the literature, observing phenomena, extracting, and processing data, formulating results, as well as how to contribute to developing science and knowledge. One of the main goals of this course is to ensure students can write thesis proposal and conduct scientific research.

Expected Learning Outcome

Lulusan akan mampu untuk:

- Menjelaskan dan menerapkan jenis metode penelitian sistem informasi yang tepat baik itu bersifat kuantitatif, kualitatif, action research, pemodelan, atau teknik statistik lainnya dalam penelitian tentang difusi, pengembangan, dan penggunaan teknologi informasi serta penerapan informasi dan manajemen.
- Menerapkan metode penelitian yang sesuai dengan topik penelitian yang diwujudkan dalam bentuk proposal, tesis maupun karya tulis ilmiah.

Graduates will be able to:

- *Describes and applies the right type of information systems research method including quantitative, qualitative, action research, modelling, statistical analysis in different research such as diffusion, development and use of information technology as well as the use of information and management.*
- *Applies the right method to conduct research and write scientific works in the form of research proposal, thesis, and scientific publication.*

MASTER OF INFORMATION SYSTEMS CURRICULUM SYLLABUS 2018			
	Course **Research Method**		
	Code: IS185201	CREDIT: 3	Semester: 1
Release: 00			

Course Learning Outcome

Specific Skills :
- Mampu merancang penelitian di bidang sistem informasi
- Mampu mengembangkan penelitian kualitatif dan kuantitatif secara kreatif
- Mampu melakukan penelitian baik secara individu maupun sebagai tim
- Mampu mengusulkan solusi alternatif untuk permasalahan yang terkait dengan topik penelitian
- Memiliki sikap kepemimpinan baik sebagai ketua maupun anggota tim penelitian
- *Able to design a research in the field of information systems.*
- *Able to creatively develop qualitative and quantitative research.*
- *Able to conduct a research both independently and as a team.*
- *Able to provide solution alternatives for problems related to research topics*
- *Leadership attitude both as a leader or member of a research team.*

General Skills :
- Mampu merancang dan melaksanakan penelitian sistem informasi
- Mampu menulis proposal tesis dan menyelesaikannya tepat waktu
- *Able to design and conduct information system research*
- *Able to write a thesis proposal, and complete it on time*

Knowledge :
- Memiliki pengetahuan tentang metode penelitian sistem informasi dan perkembangan ilmiah di bidang tersebut sepanjang waktu
- Memiliki pengetahuan yang cukup untuk menghindari plagiarisme dan menguasai peraturan akademik lainnya
- Mampu meningkatkan kompetensi pembelajaran mandiri
- Mampu mendokumentasikan dan mengaplikasikan hasil penelitian untuk publikasi ilmiah
- *Have the knowledge about information systems research methods and scientific developments in the field from time to time.*
- *Have adequate knowledge to avoid plagiarism and master other academic research rules.*
- *Able to improve the capacity of learning independently*
- *Able to document and apply research results in order to utilize them for scientific publication*

Attitude :
- Menjunjung tinggi nilai kemanusiaan dalam melakukan penelitian yang berdasarkan agama, moral, dan etika
- Mematuhi hukum dan peraturan dalam kehidupan sosial dan bernegara
- Menunjukkan rasa tanggung jawab dan kemandirian dalam pekerjaan di bidangnya;

	Course		
	Research Method		
	Code: IS185201	CREDIT: 3	Semester: 1

Release: 00

- *Uphold the value of humanity in conducting research based on religion, morals, and ethics.*
- *Obey the law and discipline in social life and state.*
- *Shows responsibility and independence for the work in the field of his expertise;*

Specific Learning Outcome

Kognitif :
- Mampu untuk menjelaskan konsep dan prinsip penelitian sistem informasi
- Mampu untuk menentukan metode penelitian yang sesuai dengan permasalahan
- Mampu melakukan penelitian kuantitatif
- Mampu melakukan penelitian kualitatif
- Mampu melakukan penelitian gabungan kualitatif dan kuantitatif
- *Able to explain the concepts and principles of information systems research*
- *Able to determine research methods that are appropriate to the research problem*
- *Able to conduct Quantitative research*
- *Able to conduct Qualitative research*
- *Able to conduct Mix Methods research (Qualitative and Quantitative)*

Psychomotor :
- Mampu memberikan solusi terkait metode penelitian relevan untuk suatu rencana penelitian
- Mampu membuat roadmap penelitian dan menjelaskannya
- Mampu menuliskan artikel ilmiah terkait dengan topik penelitian yang dipilih

- *Able to provide solutions related to relevant research methods for a research plan*
- *Able to make a research roadmap and communicate it*
- *Able to write papers related to chosen research topic*

Affective :
- Mampu dan mau berperilaku jujur dan melawan plagiarisme
- Mampu dan mau berperilaku sesuai dengan etika akademik
- Mampu dan mau mematuhi peraturan dan undang-undang yang berlaku
- Mampu dan mau bertindak penuh rasa tanggung jawab

- *Able & willing to behave honestly and against plagiarism.*
- *Able & willing to behave according to academic ethics*
- *Able & willing to comply with applicable laws & regulations*

	Course		
	Research Method		
	Code: IS185201	CREDIT: 3	Semester: 1

Release: 00

- *Able & willing to behave responsibly*

Course Subjects

- Pendahuluan: Metode Penelitian Sistem informasi
- Kaidah-kaidah penelitian
- Dasar Penelitian, Teori dan Pengukuran
- Mendefinisikan Masalah Penelitian
- Mempersiapkan Penelitian
- Eksperimen dan Desain Eksperimen
- Survei Pendataan dan Kuesioner
- Probabilitas dan Sampling
- Bekerja dengan Data Terstruktur
- Recoding Data untuk Analisis
- Analisis univariat
- Univariat Statistik dan Tendensi Sentral
- bivariat Statistik: Korelasi dan uji t-standar
- Chi-Square: Menganalisis data Nominal
- Regresi Linier
- Structural Equation Modelling SEM
- Perangkat lunak SEM
- Pengertian Penelitian Kualitatif
  - Jenis-jenis Penelitian Kualitatif
  - Komponen dari Proses Penelitian
  - Pengambilan Sampel dan “Corpus Construction”
  - Preposisi: Mayor dan Minor

	Course		
	Research Method		
	Code: IS185201	CREDIT: 3	Semester: 1

Release: 00

- Analisis Penelitian Kualitatif
- Menulis Penelitian Kualitatif
- Teknik Interview
- Mengevaluasi Penelitian Kualitatif
- Generalisasi Penelitian Kualitatif
- Etika Penulisan

- *Introduction: Information systems research methods*
- *Research principles*
- *Basic Research, theory and measurement*
- *Defining research problems*
- *Preparing research*
- *Experiments and experimental Design*
- *Survey and questionnaire*
- *Probability and sampling*
- *Working with structured Data*
- *Data recoding for analysis*
- *Univariate analysis*
- *Univariate statistics and central tendency*
- *Bivariate Statistics: correlation and t-standardized test*
- *Chi-Square: analyzing nominal data*
- *Linear regression*
- *Structural Equation Modeling (SEM)*

	Course		
	Research Method		
	Code: IS185201	CREDIT: 3	Semester: 1

Release: 00

• *SEM software*

• *Understanding qualitative research*

- *Types of qualitative research*
- *Components of the research process*
- *Sampling and "Corpus Construction"*
- *Propositions: major and minor*
- *Qualitative research analysis*
- *Writing Qualitative Research*
- *Interview Techniques*
- *Evaluating Qualitative Research*
- *Qualitative Research Generalization*

• *Writing ethics*

Main References

1. Bernard, Russell H. Social Research Methods: Qualitative and Quantitative Approaches.
2. John Lofland and Lyn Lofland, Analyzing Social Settings: A Guide to Qualitative Observation and Analysis, 4th edition
3. John W. Creswell, Qualitative Inquiry & Research Design, Choosing Among Five Approaches, Sage Publication

Additional References

1. Scientific articles related to research method

MASTER OF INFORMATION SYSTEMS CURRICULUM SYLLABUS 2018				
	Course **Research Method**			
	Code: IS185201	CREDIT: 3	Semester: 1	
Release: 00				

Course

Systems Development and Implementation

Code: IS185102	CREDIT: 3	Semester: 2

Release: 00

Course Description

Meskipun sebuah industri perangkat lunak memiliki pengalaman yang cukup, namun banyak dari mereka yang masih berusaha memperbaiki pemahaman, cara pendokumentasian dan pengelolaan kebutuhan dari produk mereka. Ketidak tepatan pengguna dalam mendefinisikan masukan, ketidaklengkapan pendefinisian kebutuhan perangkat lunak, perubahan kebutuhan perangkat lunak dan kesalahpahaman dalam memahami kebutuhan bisnis adalah alasan utama mengapa banyak sekali proyek software yang kurang sukses. Course pengembangan & penerapan system akan memberikan pengalaman kepada mahasiswa untuk memahami cara dan metode best practice dalam mendefinisikan dan mendokumentasikan kebutuhan perangkat lunak, mengenerate desain dari kebutuhan yang ada, meimplementasikan dan mengelola rilis system. Mahasiswa diharapkan mampu membuat dokumentasi kebutuhan perangkat lunak sesuai dengan permasalahan proyek perangkat lunak yang ada sesuai dengan pedoman best practice dalam prosesnya dan mengimplementasikannya. Untuk itu metode pembalajaran yang digunakan adalah dengan memberikan proyek secara kelompok untuk memahami kebutuhan bisnis dan mewujudkan kedalam kebutuhan perangkat lunak yang tepat sesuai best practice tersebut. Mahasiswa dapat menghasilkan dokumentasi kebutuhan dan desain perangkat lunak serta pengelolaan rilis perangkat lunak yang nantinya dapat digunakan sebagai bekal agar memahami teknik tersebut dan dapat bersaing dalam dunia kerja dan dapat lebih siap menyelesaikan permasalahan riil dalam dunia kerja. Mahasiswa juga mampu memahami dengan baik penelitian terkini dalam bidang Manajemen pengembangan dan penerapan sistem perangkat lunak.

Although a software industry has sufficient experience, many of them are still trying to improve understanding, documenting and managing requirements of their products. Inaccuracies of users in defining inputs, incomplete definition of software requirements, changing software requirements and misunderstandings in understanding business requirements are the main reasons why so many software projects are less successful. The system development & implementation course will provide students with experience to understand best practice ways and methods in defining and documenting software requirements, generating designs from existing requirements, implementing and managing system releases. Students are expected to be able to document software requirements in accordance with existing software project problems in accordance with best practice guidelines in the process and implement them. For this reason, the learning method used is to give projects in groups to understand business needs and translate into the right software requirements according to these best practices. Students can produce documentation of software requirements and design as well as management of software releases which can later be used as a provision to understand these techniques and be able to compete in the world of work and be better prepared to solve real problems in the world of work.

Course

Systems Development and Implementation

Code: IS185102	CREDIT: 3	Semester: 2

Release: 00

Students are also able to understand well the latest research in the field of Management of software systems development and implementation.

Expected Learning Outcome

- Mengidentifikasi, membuat dan mengelola kebijakan dan proses organisasi terkait manajemen data dan informasi dengan menyeimbangkan kebutuhan multidimensi seperti kebutuhan hukum dan perundangan, pertimbangan etis dan implikasi kebutuhan teknologi, kebutuhan bisnis organisasi, kualitas data dan kebutuhan beroperasi pada lingkungan internasional
- Menerapkan pendekatan yang ramah lingkungan dan sosial untuk pengembangan solusi, pembelian, pengoperasian, manajemen sumber daya dan praktek Teknologi Informasi lainnya; memastikan keamanan dan menghindari bahaya kesehatan untuk manajemen kontrak dengan pihak luar; memastikan privasi dan integritas memandu semua praktek TI; menginterpretasikan dan mematuhi kebutuhan legislatif.
- Mengidentifikasi dan mengevaluasi metode dan trend baru SI, mengembangkan model aktivitas domain yang inovatif, membuat rencana untuk mengeksploitasi metode dan teknologi baru dan cara baru untuk menyusun dan melakukan aktivitas organisasi serta mengestimasi manfaat, konsekuensi buruk dari implementasi.
- Mengintegrasikan tahapan iteratif yang meliputi analisis, perancangan, implementasi, dan pengoperasian, mengembangkan dan menerapkan aplikasi TI yang memenuhi kebutuhan pengguna
- Mampu menjelaskan konsep teoretis dan metode untuk merancang, mengimplementasikan dan menerapkan sistem untuk dimanfaatkan oleh organisasi
- Menganalisis kebutuhan organisasi dan menentukan bagaimana kebutuhan ini dapat ditangani dengan data, informasi dan solusi manajemen konten serta mengelola teknologi pengelolaan data dan informasi

- *Identify, create, and manage organizational policies and processes related to data and information management by balancing multidimensional requirements, such as legal and regulatory requirements, ethical considerations and implications of technology decisions, organizational business requirements, data quality issues, and requirements of operating in an international environment.*
- *Apply sustainable approaches for IT solutions development, IT procurement, IT operations, IT resources management, and other IT practices; Ensure safety and avoid health hazards for contract arrangements with external parties; Ensure that privacy and integrity guide all IT practices; Interpret and comply with legislative requirements.*

MASTER OF INFORMATION SYSTEMS CURRICULUM SYLLABUS 2018				
	Course **Systems Development and Implementation**			
	Code: IS185102	CREDIT: 3	Semester: 2	
Release: 00				

- *identify and evaluate new IS methods and trends; develop innovative domain activity models; develop a plan to exploit new and emerging methods and technologies and new ways of structuring and performing organization activities as well as estimating the benefits, negative consequences of their implementation.*
- *Integrate iterative processes consisting of analysis, design, implementation, and operations, develop and deploy IT applications that satisfy user needs.*
- *Understand concept and methods systems implementation and the deployment of systems to organizational use.*
- *Analyze the needs of an organization and determine how those needs can be best addressed with data, information, and content management solutions*

Course Learning Outcome

Ketrampilan Khusus :

- Mengembangkan dan mengimplementasikan kebijakan dan proses manajemen informasi organisasi
- Memelihara kesesuaian dengan hukum, peraturan dan standar
- Memastikan perlindungan privasi dan integritas memandu seluruh praktek SI
- Memonitor lingkungan teknologi
- Menganalisis dan mendokumentasikan aktivitas domain
- Memonitor teknologi yang baru muncul untuk memahami potensi dukungannya pada domain
- Menentukan dan mendokumentasikan kebutuhan sistem
- Mengelola proses pengembangan berbasis rencana, hibrida dan agile

Specific Skills :

- *Develop and implement organizational information management policies and processes*
- *Maintain compliance with laws, regulations and standards*
- *Ensuring protection of privacy and integrity guides all IS practices*
- *Monitoring the technology environment*
- *Analyze and document domain activity*
- *Monitor emerging technologies to understand their potential support in the domain*
- *Define and document system requirements*
- *Manage plan-based, hybrid and agile development processes*

- Mengetahui siklus hidup pengembangan sistem

MASTER OF INFORMATION SYSTEMS CURRICULUM SYLLABUS 2018			
	Course **Systems Development and Implementation**		
	Code: IS185102	CREDIT: 3	Semester: 2
Release: 00			

Pengetahuan :
- Menangkap dan menstrukturisasi data dan informasi dengan teknik pemodelan konseptual yang tepat

Knowledge :
- *Know the system development life cycle*
- *Capture and structure data and information with appropriate conceptual modeling techniques*

Specific Learning Outcome

Kognitif :
- Menganalisis tujuan bisnis dan proses yang ada
- Menganalisis pengguna dan mengidentifikasi kelas pengguna perangkat lunak
- Menyeleksi user champion kelas user
- Menganalisis kebutuhan user dan menyimpulkan menjadi kebutuhan fungsional
- Mampu menganalisis kebutuhan sistem menjadi desain system.
- Mampu mengimplementasikan desain sistem kedalam Code program
- Mampu mengelola rilis perangkat lunak

Cognitive :
- *Analyze existing business objectives and processes*
- *Analyze users and identify software user classes*
- *Selecting user champion class user*
- *Analyze user requirements and conclude into functional requirements*
- *Able to analyze system requirements into system design.*
- *Able to implement system design into program code*
- *Able to manage software release*

Psikomotor :
- Membuat dokumentasi kebutuhan perangkat lunak

Psychomotor :
- *Create software requirements documentation*

Afektif :
- Menunjukkan hasil analisis kebutuhan pengguna sampai menjadi kebutuhan fungsional dan dokumentasinya
- Mengusulkan dan membuat dokumentasi terkait topik terbaru mengenai perkembangan manajemen kebutuhan perangkat lunak, pembangunan dan desain perangkat lunak dan implementasi perangkat lunak

Course

Systems Development and Implementation

Code: IS185102	CREDIT: 3	Semester: 2

Release: 00

Affective :
- *Shows the results of the analysis of user requirements to become functional requirements and their documentation*
- *Propose and create documentation related to the latest topics regarding the development of software requirements management, software development and design and software implementation*

Course Subjects

1. Pengantar Spesifikasi Kebutuhan Software: Identify users, Define Vision & Scope, Understand User Needs, Derive Functional Requirements, Analyze & Verify Requirement, Manage Requirement Changes
2. Konsep OOAD dan berbagai diagram UML: object technology, Object-Oriented Analysis and Design.
3. BOOM: Steps of BOOM, Analyzing End-to-End Business Processes.
4. Analisis dan perancangan perangkat lunak dengan UML: Storyboarding the User's Experience, Robustness Analysis, Object Interaction, Lifecycle Requirements for Key Business Objects, Gathering Across-the-Board Business Rules with Class Diagrams, Iconix Process, Iconix process, Requirements Review, Robustness Analysis Review, Preliminary Design Review, Technical Architecture Review.
5. Tool UML: star UML dan demo dengan studi kasus kecil.
6. Dasar-dasar konstruksi Perangkat lunak:Introduksi Konstruksi Perangkat lunak, Methaphors dalam Pembangunan perangkat Lunak, Prerequisites, proses design, kesederhanaan, keamanan dari bug, kemudahan pemahaman, kesiapan berubah, dan Design in Construction.
7. Translasi diagram UML ke Code program: Overview of UML for Java Programmers, Working with Diagrams, Class Diagram, Sequence Diagram, Use Case, OOD, Packages, Object Diagram, dan state machine, dan reverse engieering.
8. Design Pattern: Delegation , Interface, Adapter, Singleton, Visitor, Observer, Template method, Abstract factory, dan Decorator.
9. Pengujian perangkat lunak: Test-Case Design, Module (Unit) Testing, Higher-Order Testing, Usability (User) Testing, dan Debugging.
10. Proses Implementasi Perangkat Lunak: Perencanaan Implementasi Perangkat Lunak; Eksekusi Implementasi Perangkat Lunak; Evaluasi dan Pengontrolan Implementasi Perangkat Lunak.
11. Implementasi Perangkat Lunak untuk Paket Software: Membuat perencanaan; Melakukan eksekusi implementasi; Melakukan evaluasi dan kontrol implementasi.
12. Manajemen kebutuhan, design dan implementasi PL dalam Enhanced Development PL
    - Agile Software Development

Course

Systems Development and Implementation

Code: IS185102	CREDIT: 3	Semester: 2

Release: 00

- eXtreme Programming

1. *Introduction to Software Requirements Specifications: Identify users, Define Vision & Scope, Understand User Needs, Derive Functional Requirements, Analyze & Verify Requirements, Manage Requirement Changes*
2. *OOAD concepts and various UML diagrams: object technology, Object-Oriented Analysis and Design.*
3. *BOOM: Steps of BOOM, Analyzing End-to-End Business Processes.*
4. *Software analysis and design with UML: Storyboarding the User's Experience, Robustness Analysis, Object Interaction, Lifecycle Requirements for Key Business Objects, Gathering Across-the-Board Business Rules with Class Diagrams, Iconix Process, Iconix process, Requirements Review, Robustness Analysis Review, Preliminary Design Review, Technical Architecture Review.*
5. *UML tools: star UML and demo with small case studies.*
6. *Software construction fundamentals: Introduction to Software Construction, Methaphors in Software Development, Prerequisites, process design, simplicity, bug safety, ease of understanding, change readiness, and Design in Construction.*
7. *Translation of UML diagrams to code programs: Overview of UML for Java Programmers, Working with Diagrams, Class Diagrams, Sequence Diagrams, Use Cases, OOD, Packages, Object Diagrams, and state machines, and reverse engineering.*
8. *Design Pattern: Delegation , Interface, Adapter, Singleton, Visitor, Observer, Template method, Abstract factory, and Decorator.*
9. *Software testing: Test-Case Design, Module (Unit) Testing, Higher-Order Testing, Usability (User) Testing, and Debugging.*
10. *Software Implementation Process: Software Implementation Planning; Software Implementation Execution; Evaluation and Control of Software Implementation.*
11. *Software Implementation for Software Packages: Making plans; Execute implementation; Conduct implementation evaluation and control.*
12. *Software requirements management, design and implementation in Enhanced Software Development*
    - *Agile Software Development*
    - *eXtreme Programming*

Main References

1. **Karl Wiegers**, Software Requirements, Microsoft Press; 3 edition, 2013
2. Rambaugh, J., M. Blaha, W., Object Oriented Modeling and Design, Prentice-Hall, 1991. (chapters 3 & 4)

	Course **Systems Development and Implementation**	
	Code: IS185102 | CREDIT: 3 | Semester: 2	

Release: 00

3. **Christine B. Tayntor**, *Successful Packaged Software Implementation*, Auerback Publications

Additional References

1. The Software Engineering Body of Knowledge (SWEBOK) V3, IEEE Computer Society (IEEE) (Knowledge Area 1)
2. Craig Larman, Applying UML and patterns, Prentice-Hall, Englewood Cliffs, NJ, 1998

Course

Information Systems Management and Operation

Code: IS185103	CREDIT: 3	Semester: 2

Release: 00

Course Description

Manajemen dan Operasional Sistem Informasi mencakup kompetensi yang memungkinkan lulusan memiliki kemampuan untuk mengelola proses pembangunan dan operasional sistem dan layanan Sistem Informasi dari tahapan perencanaan hingga peningkatan berkelanjutan.

Information System Management and Operations course includes competencies that enable students to have the ability to manage the process of developing and operating information system and services from the planning stage to continuous improvement.

Expected Learning Outcome

Lulusan diharapkan mampu:

- Mengimplementasikan konsep dan metode untuk mengembangkan dan mengimplementasikan perencanaan jangka panjang untuk mendesain, menyerahkan dan menggunakan informasi perusahaan
- Mendeskripsikan konsep dan metode untuk mengelola kompleksitas sistem informasi dan teknologi serta menyelaraskan dengan strategi perusahaan
- Mengaplikasikan konsep dan metode untuk mengembangkan, memelihara, dan secara konsisten meningkatkan kinerja organisasi pada saat memberikan sistem informasi, layanan, dan infrastruktur yang sesuai
- Mengaplikasikan kemampuan manajemen yang professional untuk mendesain dan mengelola SI yang efektif, memastikan proses operational yang efisien dan efektif, menentukan prinsip manajemen pada proyek SI, dan mengelola penggunaan sistem informasi

Graduates will be able to:

- *Implement concepts and methods to develop and implement long-term plans for designing, delivering, and using organizational information*
- *Describe concepts and methods to manage the complexity of information systems and technologies and fitting these with the organization's strategy.*
- *Apply concepts and methods to develop, maintain, and consistently improve organization performance while providing appropriate information systems, services, and infrastructure.*
- *Apply professional management skills to design and manage an effective IS, ensure operational efficiency and effectiveness in service delivery, govern IS project management principles and manage information systems use.*

MASTER OF INFORMATION SYSTEMS CURRICULUM SYLLABUS 2018			
	Course **Information Systems Management and Operation**		
	Code: IS185103	CREDIT: 3	Semester: 2
Release: 00			

Course Learning Outcome

Specific Skills :
- Mampu membuat rencana proyek TI
- Mampu mempergunakan *tools* manajemen proyek TI
- Mampu menghasilkan dokumen-dokumen produk Manajemen Layanan TI

- *Able to make IT project plans*
- *Able to use IT project management tools*
- *Able to produce IT Service Management product documents*

General Skills :
- Mampu menjabarkan aktivitas bisnis organisasi yang menggunakan TI
- Mampu menjelaskan struktur aktivitas bisnis dalam organisasi
- Mampu menjelaskan komponen-komponen proses bisnis
- Mampu menjabarkan bagaimana IT mendukung pelaksanaan aktivitas-aktivitas bisnis
- Mampu mengembangkan konsep keberlanjutan bisnis
- Mampu merumuskan solusi TI untuk mendukung tujuan bisnis
- Mampu mengelola layanan TI
- *Able to describe the organization's business activities that use IT*
- *Able to explain the structure of business activities in the organization*
- *Able to explain the components of business processes*
- *Able to describe how IT supports the implementation of business activities*
- *Able to develop the concept of business sustainability*
- *Able to formulate IT solutions to support business goals*
- *Able to manage IT services*

Knowledge :
- Mampu menjelaskan siklus hidup layanan TI
- Mampu menjelaskan proses-proses Manajemen Layanan TI
- Mampu menjelaskan konsep dan metode Manajemen Proyek TI
- *Able to explain the IT service life cycle*
- *Able to explain IT Service Management processes*
- *Able to explain the concepts and methods of IT Project Management*

Attitude :
- Menjunjung tinggi nilai kemanusiaan dalam menjalankan tugas berdasarkan agama, moral, dan etika;

Course

Information Systems Management and Operation

Code: IS185103	CREDIT: 3	Semester: 2

Release: 00

- Taat hukum dan disiplin dalam kehidupan bermasyarakat dan bernegara;
- Menunjukkan Attitude bertanggungjawab atas pekerjaan di bidang keahliannya secara mandiri
- *Upholding human values in carrying out their duties based on religion, morals, and ethics;*
- *Obey the law and discipline in the life of society and the state;*
- *Demonstrate an attitude of being responsible for work in their area of expertise independently*

Specific Learning Outcome

Cognitive :
- Mahasiswa mampu memahami konsep teoretis dan metode manajemen proyek TI
- Mahasiswa mampu memahami konsep, proses, aktivitas, functions, dan produk dalam manajemen layanan TI.
- *Students are able to understand the theoretical concepts and methods of IT project management*
- *Students are able to understand concepts, processes, activities, functions, and products in IT service management.*

Psychomotor :
- Mahasiswa mampu membuat rencana manajemen proyek TI
- Mahasiswa mampu membuat produk-produk Manajemen Layanan TI
- *Students are able to make IT project management plans*
- *Students are able to make IT Service Management products*

Affective :
- Mahasiswa mampu & mau berprilaku jujur
- Mahasiswa mampu & mau berprilaku komunikatif
- Mahasiswa mampu & mau tunduk pada peraturan & perundangan yang berlaku
- Mahasiswa mampu & mau berprilaku bertanggung jawab
- *Students are able & willing to behave honestly*
- *Students are able & willing to behave communicatively*
- *Students are able & willing to comply with applicable laws & regulations*
- *Students are able & willing to behave responsibly*

MASTER OF INFORMATION SYSTEMS CURRICULUM SYLLABUS 2018				
	Course **Information Systems Management and Operation**			
	Code: IS185103	CREDIT: 3	Semester: 2	
Release: 00				

Course Subjects

- Konsep, Kerangka Kerja, & Standar Manajemen Layanan TI
- Siklus Hidup Layanan TI
- Service Strategy
- Service Design
- Service Transition
- Service Operation
- Continual Service Improvement
- Konsep-Konsep Manajemen Proyek
- Metodologi Manajemen Proyek TI
- Tim Manajemen Proyek TI
- Aktivitas setiap Fase Manajemen Proyek TI

- *IT Service Management Concepts, Frameworks & Standards*
- *IT Service Lifecycle*
- *Service Strategy*
- *Service Design*
- *Service Transition*
- *Service Operation*
- *Continuous Service Improvement*
- *Project Management Concepts*
- *IT Project Management Methodology*
- *IT Project Management Team*
- *Activities of each Phase of IT Project Management*

Main References

1. **Tony Dwi Susanto,** Sukses Mengelola Layanan Teknologi Informasi & Kiat Lulus Ujian Sertifikasi ITIL Foundation, AISINDO, 2017
2. **Jan Van Bon et.al.**, Foundation of IT Service Management based on ITIL V3, Van Haren Publishing,2007
3. **Robb A**, Effective IT Service Management, Springer Verlag, 2007
4. ITIL For Dummies, Peter Farenden, 2012
5. **Kathy Schwalbe**, Information Technology Project Management, Cengage Learning, 2016.

Course

Information Systems Management and Operation

Code: IS185103	CREDIT: 3	Semester: 2

Release: 00

Additional References

1. Jurnal – Jurnal internasional dan artikel terkait “IT Service Management” dan “IT Management Project”.
   International journals and articles related to “IT Service Management” and “IT Management Project”.
2. The Project Management Body of Knowledge (PMBOK), PMP, 2017.
3. The ITIL 2011 Series Books, the Office of Government Commerce (OGC).

Course

Topics in e-Government & Smart City Management

Code: IS185901	CREDIT: 3	Semester: 2/3

Release: 00

Course Description

Manajemen e-Government dan Smart City mencakup kompetensi yang memungkinkan lulusan memiliki kemampuan memahami factor-faktor pendorong (*drivers*) dan mengelola factor-faktor penentu keberhasilan (*enablers*) kesuksesan e-Government dan Smart City, serta menemukan potensi-potensi penelitian topik e-government dan Smart City.

Management of e-Government and Smart City includes competencies that enable graduates to have the ability to understand the drivers and manage the success factors (enablers) for the success of e-Government and Smart City, as well as discover research potentials on e-government topics. and Smart City.

Expected Learning Outcome

Lulusan diharapkan mampu:

- Memahami konsep dan metode mengelola kompleksitas sistem dan teknologi informasi serta menyelaraskannya dengan strategi organisasi secara umum
- Mengimplementasikan konsep dan keberlangsunan lingkungan dan sosial IT solutions yang selaras dengan tanggung jawab perusahaan dan selaras dengan kebutuhan regulasi dan standard organisasi
- Menjabarkan berbagai aktivitas organisasi dalam menggunakan teknologi informasi untuk meningkatkan cara aktivitas-aktivitas bisnis tersebut disusun dan dilakukan.
- Mengaplikasikan konsep dan metode untuk mengembangkan, memelihara, dan secara konsisten meningkatkan kinerja organisasi pada saat memberikan sistem informasi, layanan, dan infrastruktur yang sesuai
- Menerapkan konsep teoretis dan metode untuk mengembangkan dan mengimplementasikan rencana jangka panjang untuk merancang, menghasilkan, dan menggunakan SI
- Menjelaskan komponen-komponen infrastruktur TI
- Membuat kebijakan dan standard untuk keberlangsungan bisnis, jaminan informasi, perencanaan dan pengimplementasian manajemen resiko, kepercayaan dan keamanan, serta pemulihan bencana dan perlindungan informasi
- Mengidentifikasi, membuat, dan memanajemen kebijakan dan proses perusahaan yang berkaitan dengan data dan manajemen informasi dengan cara menyeimbangkan kebutuhan multi dimensi seperti kebutuhan peraturan dan regulasi, pertimbangan dan implikasi etik dari keputusan teknologi, kebutuhan bisnis organisasi, isu kualitas data, dan kebutuhan operasional dalam lingkup internasional

Course

Topics in e-Government & Smart City Management

Code: IS185901	CREDIT: 3	Semester: 2/3

Release: 00

- Merancang dan mengimplementasikan arsitektur untuk sistem manajemen konten
- Menggunakan arsitektur enterprise untuk mempengaruhi proyek peningkatan organisasi yang terkait dengan sistem informasi
- Mengidentifikasi dan mengevaluasi metode dan trend baru pada IS; mengembangkan model aktifitas innovative domain
- Mengaplikasikan kemampuan manajemen yang professional untuk mendesain dan mengelola SI yang efektif, memastikan proses operational yang efisien dan efektif, menentukan prinsip manajemen pada proyek SI, dan mengelola penggunaan sistem informasi
- Menganalisis efek dan dampak SI terhadap organisasi, membuat dan mengelola mekanisme pengawasan dimana organisasi mengevaluasi, mengarahkan dan memonitor organisasi TI dan menciptakan praktek untuk meminimalkan dampak lingkungan dan merencanakan kelangsungan hidup perusahaan dalam jangka panjang.

Graduates will be able to:

- *Describe concepts and methods to manage the complexity of information systems and technologies and fitting these with the organization's strategy*
- *Implementation of concept and environmentally and socially sustainable IT solutions that are aligned with the responsibilities of organizations as well as in compliance with legislative and regulatory requirements and industry standards.*
- *Describe various organization activities in order to make use of information technologies to improve the way those activities are structured and are performed.*
- *Apply concepts and methods to develop, maintain, and consistently improve organization performance while providing appropriate information systems, services, and infrastructure.*
- *Implement concepts and methods to develop and implement long-term plans for designing, delivering, and using organizational information.*
- *Able to explain the components of IT infrastructure*
- *Developing policy and standard for business continuity, information assurance, planning and implementing risk management, trust, security and safety, as well as disaster recovery and information protection.*
- *Identify, create, and manage organizational policies and processes related to data and information management by balancing multidimensional requirements, such as legal and regulatory requirements, ethical considerations and implications of technology decisions, organizational business requirements, data quality issues, and requirements of operating in an international environment*
- *Design and implement the architecture for the content management system*
- *Use enterprise architecture to influence organizational improvement projects related to information systems*

Course

Topics in e-Government & Smart City Management

Code: IS185901	CREDIT: 3	Semester: 2/3

Release: 00

- *Identify and evaluate new IS methods and trends; develop innovative domain activity models; develop a plan to exploit new and emerging methods and technologies and new ways of structuring and performing organization activities as well as estimating the benefits, negative consequences of their implementation.*
- *Apply professional management skills to design and manage an effective IS, ensure operational efficiency and effectiveness in service delivery, govern IS project management principles and manage information systems use.*
- *Analyze the effect and impact of IS on industries, firms, and institutions; create and manage the oversight mechanisms by which an organization evaluates, directs, and monitors organizational IT and establish practices for minimizing environmental impacts and planning for long-term firm viability.*
- *Design integrated communication networks; Specify requirements for large-scale network solutions, design an implementation architecture for organizational data processing and system solutions, using both internal hardware resources and external service.*

Course Learning Outcome

Specific Skills :

- Mampu membuat Masterplan e-Government dan Smart City
- Mampu melakukan kajian literature penelitian-penelitian e-Government dan Smart City serta menemukan *Knowledge Gap* sebagai potensi thesis.
- *Able to create e-Government and Smart City Masterplans*
- *Able to conduct a literature review of e-Government and Smart City researches and find the Knowledge Gap as a potential thesis.*

General Skills :

- Mampu menjabarkan aktivitas bisnis organisasi yang menggunakan TI
- Mampu menjelaskan struktur aktivitas bisnis dalam organisasi
- Mampu menjelaskan komponen-komponen proses bisnis
- Mampu menjabarkan bagaimana IT mendukung pelaksanaan aktivitas-aktivitas bisnis
- Mampu mengembangkan konsep keberlanjutan bisnis
- Mampu merekomendasikan solusi-solusi TI bagi peningkatan proses bisnis organisasi publik dan pengelolaan kota.
- *Able to describe the organization's business activities that use IT*
- *Able to explain the structure of business activities in the organization*
- *Able to explain the components of business processes*
- *Able to describe how IT supports the implementation of business activities*

Course

Topics in e-Government & Smart City Management

Code: IS185901	CREDIT: 3	Semester: 2/3

Release: 00

- *Able to develop the concept of business sustainability*
- *Able to recommend IT solutions for improving the business processes of public organizations and city management*.

Knowledge :
- Mahasiswa mampu menjelaskan anatomi kota dan proses perkembangan kota
- Mahasiswa mampu menjelaskan pengertian dan domain Smart City
- Mahasiswa mampu menjelaskan proses-proses internal pemerintah dan teknologi *Government Resource Planning* (GRP)
- *Students are able to explain the anatomy of the city and the process of urban development*
- *Students are able to explain the meaning and domain of Smart City*
- *Students are able to explain government internal processes and Government Resource Planning (GRP) technology*

Attitude :
- Menjunjung tinggi nilai kemanusiaan dalam menjalankan tugas berdasarkan agama, moral, dan etika;
- Taat hukum dan disiplin dalam kehidupan bermasyarakat dan bernegara;
- Menunjukkan Attitude bertanggungjawab atas pekerjaan di bidang keahliannya secara mandiri
- *Upholding human values in carrying out their duties based on religion, morals, and ethics;*
- *Obey the law and discipline in the life of society and the state;*
- *Demonstrate an attitude of being responsible for work in their area of expertise independently*

Specific Learning Outcome

Cognitive :
- Mahasiswa mampu menjelaskan kerangka kerja, standar, konsep, metode, dan *tools* untuk manajemen e-Government dan Smart City
- Mahasiswa mampu menjelaskan berbagai jenis proses bisnis dan teknologi e-Government
- Mahasiswa mampu menjelaskan berbagai konsep dan inovasi teknologi pendukung e-government dan Smart City.
- Mahasiswa mampu menjelaskan *enablers* dan *drivers* bagi manajemen e-Government dan Smart City yang sukses.
- Mahasiswa mampu menjelaskan dan menganalisis berbagai metode penelitian yang ada dan paling tepat untuk topik Smart City dan e-government

Course

Topics in e-Government & Smart City Management

Code: IS185901	CREDIT: 3	Semester: 2/3

Release: 00

- *Students are able to explain frameworks, standards, concepts, methods, and tools for e-Government and Smart City management*
- *Students are able to explain various types of business processes and e-Government technology*
- *Students are able to explain various concepts and technological innovations that support e-government and Smart City.*
- *Students are able to explain the enablers and drivers for successful e-Government and Smart City management.*
- *Students are able to explain and analyze various research methods that exist and are most appropriate for the topic of Smart City and e-government*

Psychomotor :

- Mampu menyusun analisis *Enterprise Architecture* e-Government
- Mampu menyusun analisis *Enterprise Architecture* Smart City.
- Mahasiswa mampu menulis literature review potensi penelitian topik Tata Kelola dan Audit SI.

- *Able to compile an analysis of Enterprise Architecture e-Government*
- *Able to compile an analysis of Enterprise Architecture Smart City.*
- *Students are able to write a literature review of potential research on IS Governance and Auditing topics.*

Affective :

- Mahasiswa mampu & mau berprilaku jujur
- Mahasiswa mampu & mau berprilaku komunikatif
- Mahasiswa mampu & mau tunduk pada peraturan & perundangan yang berlaku
- Mahasiswa mampu & mau berprilaku bertanggung jawab
- *Students are able & willing to behave honestly*
- *Students are able & willing to behave communicatively*
- *Students are able & willing to comply with applicable laws & regulations*
- *Students are able & willing to behave responsibly*

Course Subjects

- Definisi, Konsep, Motivasi, Tujuan e-Government & Smart City
- Enterprise Architecture & domain e-Government & Smart City

Course

Topics in e-Government & Smart City Management

Code: IS185901	CREDIT: 3	Semester: 2/3

Release: 00

- Permasalahan/Hambatan e-Government & Smart City
- Masterplan e-Government & Smart City
- Proses Bisnis Pemerintah & Government Resource Planning (GRP)
- Anatomi kota & proses perkembangan Kota
- Inovasi Teknologi untuk berbagai dimensi Smart City
- Manajemen Proyek & Manajemen Perubahan e-Government
- Leasons learned: kasus-kasus keberhasilan & kegagalan e-Government & Smart City di Indonesia dan di dunia
- Penelitian-Penelitian e-Government & Smart City: eksisting vs. Knowledge Gaps

- *Definition, Concept, Motivation, Purpose of e-Government & Smart City*
- *Enterprise Architecture & e-Government & Smart City domains*
- *Problems/Barriers of e-Government & Smart City*
- *e-Government & Smart City Masterplan*
- *Government Business Process & Government Resource Planning*
- *City anatomy & City development process*
- *Technological innovation for various dimensions of Smart City*
- *Project Management & e-Government Change Management*
- *Lessons learned: cases of success & failure of e-Government & Smart City in Indonesia and around the world*
- *e-Government & Smart City Research: existing vs. Knowledge Gaps*

Main References

1. Anthony Alexander, Alisha Nguyen, Living in Smart Cities – Innovation & Sustainability, World Scientific Publishing Co., 2018.
2. Lazar Rusu & Guinluigi Viscusi, Information Technology Governance in Public Organizations: Theory and Practice, Springer, 2017.
3. Darrel M. West, Digital Government, Princeton University Press, 2005.

Additional References

1. Arpan Kumar Kar and P. Vigneswara Ilavarasan, **Digital Nations – Smart Cities, Innovation, & Sustainability**, Springer, 2017.
2. **Jurnal – Jurnal internasional dan artikel** terkait “Smart City” dan “e-Government”. ***International journals and articles*** *related to “Smart City” and “e-Government”.*

MASTER OF INFORMATION SYSTEMS CURRICULUM SYLLABUS 2018				
	Course **Topics in Information Systems Audit and Governance**			
	Code: IS185902	CREDIT: 3	Semester: 2/3	
Release: 00				

Course Description

Tata Kelola dan Audit Sistem Informasi mencakup kompetensi yang memungkinkan lulusan memiliki kemampuan untuk mengarahkan, merancang, mengimplementasikan, memonitor dan mengevaluasi (mengaudit) sistem dan teknologi informasi di organisasi, serta menemukan potensi-potensi penelitian topik tata kelola dan audit SI.

Information Systems Governance and Audit include competencies that enable graduates to have the ability to direct, design, implement, monitor, and evaluate (audit) information systems and technology in organizations, as well as discover research potentials on IS governance and auditing topics.

Expected Learning Outcome

Lulusan akan mampu untuk:

- Mampu menjelaskan konsep teoretis dan metode audit, keberlanjutan bisnis serta kepastian sistem informasi secara umum.
- Mampu menjelaskan konsep dan metode mengelola kompleksitas sistem dan teknologi informasi serta menyelaraskannya dengan strategi organisasi secara umum.
- Mampu menjabarkan konsep teoretis dan metode untuk membangun, memelihara dan secara konsisten meningkatkan kinerja organisasi melalui sistem, layanan dan infrastruktur informasi yang tepat.
- Mampu menjelaskan konsep teoretis dan metode untuk mengembangkan dan mengimplementasikan rencana jangka panjang untuk merancang, menghasilkan, dan menggunakan SI untuk mencapai tujuan strategis organisasi.
- Mampu menjelaskan konsep teoretis dan metode untuk merancang, mengimplementasikan dan menerapkan sistem untuk dimanfaatkan oleh organisasi.
- Membuat kebijakan dan standar untuk keberlangsungan bisnis dan jaminan informasi, merencanakan dan mengimplementasikan pengelolaan resiko dan kepercayaan, keamanan dan keselamatan serta pemulihan bencana dan pengamanan aset informasi.

Course

Topics in Information Systems Audit and Governance

Code: IS185902	CREDIT: 3	Semester: 2/3

Release: 00

- Mengidentifikasi dan menerapkan pendekatan formal untuk pengembangan EA, melakukan proses bertahap dalam mengembangkan EA, mengidentifikasi kebutuhan perubahan EA dan mengaplikasikannya pada EA serta menyebarkan dan memelihara EA.
- Menggunakan arsitektur enterprise untuk mempengaruhi proyek peningkatan organisasi yang terkait dengan sistem informasi.
- Mengidentifikasi dan mengevaluasi metode dan trend baru SI, mengembangkan model aktivitas domain yang inovatif, membuat rencana untuk mengeksploitasi metode dan teknologi baru dan cara baru untuk menyusun dan melakukan aktivitas organisasi serta mengestimasi manfaat, konsekuensi buruk dari implementasi.
- Mengaplikasikan keahlian merancang dan mengelola organisasi SI yang efektif, memastikan efisiensi dan efektifitas penyampaian layanan, mengatur prinsip manajemen proyek SI, mengelola penggunaan SI dan sumber dayanya.
- Menganalisis efek dan dampak SI terhadap organisasi, membuat dan mengelola mekanisme pengawasan dimana organisasi mengevaluasi, mengarahkan dan memonitor organisasi TI dan menciptakan praktek untuk meminimalkan dampak lingkungan dan merencanakan kelangsungan hidup perusahaan dalam jangka Panjang.

- *Graduates will be able to implement audit, business continuity and information systems assurance concepts and methods.*
- *Graduates will be able to describe concepts and methods to manage the complexity of information systems and technologies and fitting these with the organization's strategy.*
- *Graduates will be able to apply concepts and methods to develop, maintain, and consistently improve organization performance while providing appropriate information systems, services, and infrastructure.*
- *Graduates will be able to implement concepts and methods to develop and implement long-term plans for designing, delivering, and using organizational information.*
- *Graduates will be able to understand concept and methods systems implementation and the deployment of systems to organizational use.*
- *Graduates will be able to develope policy and standard for business continuity, information assurance, planning and implementing risk management, trust, security and safety, as well as disaster recovery and information protection.*
- *Graduates will be able to identify and apply a formal approach to EA development, performing the multistage process of developing an EA, identifying the EA change needs, and applying them to the EA.*

Course

Topics in Information Systems Audit and Governance

Code: IS185902	CREDIT: 3	Semester: 2/3

Release: 00

- *Graduates will be able to identify and evaluate new IS methods and trends; develop innovative domain activity models; develop a plan to exploit new and emerging methods and technologies and new ways of structuring and performing organization activities as well as estimating the benefits, negative consequences of their implementation.*
- *Graduates will be able to apply professional management skills to design and manage an effective IS, ensure operational efficiency and effectiveness in service delivery, govern IS project management principles and manage information systems use.*
- *Graduates will be able to analyze the effect and impact of IS on industries, firms, and institutions; create and manage the oversight mechanisms by which an organization evaluates, directs, and monitors organizational IT and establish practices for minimizing environmental impacts and planning for long-term firm viability.*

Course Learning Outcome

Specific Skills :

- Mampu menjelaskan aktivitas, tools, dan konsep di proses Evaluation, Direct, Monitoring terhadap manajamen TI.
- Mampu melakukan kajian literature penelitian-penelitian Tata Kelola dan Audit SI serta menemukan Knowledge Gap sebagai potensi thesis.

- *Explaining activities, tools, and concepts in the Evaluation, Direct, Monitoring process of IT management.*
- *Conducting literature review of IS Governance and Audit research and find Knowledge Gap as a potential thesis.*

General Skills :

- Mampu menjabarkan aktivitas bisnis organisasi yang menggunakan TI
- Mampu menjelaskan struktur aktivitas bisnis dalam organisasi
- Mampu menjelaskan komponen-komponen proses bisnis
- Mampu menjabarkan bagaimana IT mendukung pelaksanaan aktivitas-aktivitas bisnis
- Mampu mengembangkan konsep keberlanjutan bisnis
- Mampu memastikan kesuksesan strategi dan implementasi TI dalam mendukung pencapaian tujuan organisasi.
- Mampu melakukan evaluasi dan peningkatan berkelanjutan SI/TI organisasi

- *Describing the organization's business activities that use IT.*
- *Explaining the structure of business activities in the organization.*
- *Explaining the components of business processes.*

	Course	
	Topics in Information Systems Audit and Governance	
	Code: IS185902 | CREDIT: 3 | Semester: 2/3	

Release: 00

- *Describing how IT supports the implementation of business activities.*
- *Developing the concept of business sustainability.*
- *Ensuring the success of IT strategy and implementation in supporting the achievement of organizational goals.*
- *Evaluating and continuously improve IS/IT organization.*

Knowledge :

- Mampu menjelaskan kerangka kerja, standar, konsep dan domain Tata Kelola TI
- Mampu menjelaskan konsep dan metode IT-business strategic alignment.
- Mampu menjelaskan konsep dan metode IT Value Realization
- Mampu menjelaskan konsep dan metode Risk Optimization.
- Mampu menjelaskan konsep dan metode Resource Optimization.
- Mampu menjelaskan konsep dan metode audit TI

- *Explaining IT Governance frameworks, standards, concepts, and domains.*
- *Explaining the concepts and methods of IT-business strategic alignment.*
- *Explaining the concept and method of IT Value Realization.*
- *Explaining the concept and method of Risk Optimization.*
- *Explaining the concept and method of Resource Optimization.*
- *Explaining the concept and method of IT audit*

Attitude :

- Menjunjung tinggi nilai kemanusiaan dalam menjalankan tugas berdasarkan agama, moral, dan etika;
- Taat hukum dan disiplin dalam kehidupan bermasyarakat dan bernegara;
- Menunjukkan sikap bertanggungjawab atas pekerjaan di bidang keahliannya secara mandiri.

- *Upholding human values in carrying out their duties based on religion, morals, and ethics.*
- *Obeying the law and discipline in the life of society and the state.*
- *Demonstrating an attitude of being responsible for work in their area of expertise independently.*

Specific Learning Outcome

Kognitif :

- Mahasiswa mampu menjelaskan kerangka kerja, standar, konsep, metode, dan tools untuk melaksanakan proses-proses Tata Kelola TI

Course

Topics in Information Systems Audit and Governance

Code: IS185902	CREDIT: 3	Semester: 2/3

Release: 00

- Mahasiswa mampu menjelaskan enablers dan drivers bagi tata kelola TI yang sukses.
- Mahasiswa mejelaskan metode dan tools audit SI.
- Mahasiswa mampu menjelaskan dan menganalisis berbagai metode penelitian yang ada dan paling tepat untuk topik Tata Kelola dan Audit TI.

- *Explaining frameworks, standards, concepts, methods, and tools to implement IT Governance processes.*
- *Explaining the enablers and drivers for successful IT governance.*
- *Explaining IS audit methods and tools.*
- *Explaining and analyzing various research methods that exist and are most appropriate for the topic of IT Governance and Audit.*

Psychomotor :

- Mahasiswa mampu melakukan pemetaan Stakeholder needs, Tujuan Organisasi, Tujuan TI, Proses, Aktivitas, hingga KPI TI.
- Mahasiswa mampu melakukan simulasi audit SI.
- Mahasiswa mampu menulis literature review potensi penelitian topik Tata Kelola dan Audit SI.

- *Mapping Stakeholder needs, Organizational Goals, IT Goals, Processes, Activities, to IT KPIs.*
- *Performing IS audit simulations.*
- *Writing a literature review of potential research on IS Governance and Auditing topics.*

Affective :

- Mahasiswa mampu & mau berprilaku jujur
- Mahasiswa mampu & mau berprilaku komunikatif
- Mahasiswa mampu & mau tunduk pada peraturan & perundangan yang berlaku
- Mahasiswa mampu & mau berprilaku bertanggung jawab
- *Students are able & willing to behave honestly.*
- *Students are able & willing to behave communicatively.*
- *Students are able & willing to comply with applicable laws & regulations.*
- *Students are able & willing to behave responsibly.*

Course Subjects

- Konsep, domain, kerangka kerja, & standar dalam tata kelola TI & manajemen TI.

Course

Topics in Information Systems Audit and Governance

Code: IS185902	CREDIT: 3	Semester: 2/3

Release: 00

- Enablers & Drivers Tata Kelola TI
- IT-Business Strategic Alignment: Konsep, Metode, & Tools
- Benefits Realization: Manajemen Investasi IT, Prioritisasi, Evaluasi Kinerja IT, & Siklus Hidup Layanan IT.
- Risk Optimization: Konsep, Kerangka Kerja, Standar, Metode, & Tools Manajemen Resiko
- Resource Optimization: Konsep & Metode Perencanaan, Pengadaan, Pengelolaan, Monitoring, & Evalusasi Sumber Daya IT
- Metode, Teknik, dan Komponen Audit SI
- Penelitian-Penelitian Tata Kelola & Audit SI: eksisting vs. Knowledge Gaps

- *Concepts, domains, frameworks & standards in IT governance & IT management.*
- *IT Governance Enablers & Drivers.*
- *IT-Business Strategic Alignment: Concepts, Methods, & Tools.*
- *Benefits Realization: IT Investment Management, Prioritization, IT Performance Evaluation, & IT Service Lifecycle.*
- *Risk Optimization: Risk Management Concepts, Frameworks, Standards, Methods & Tools.*
- *Resource Optimization: Concepts & Methods of Planning, Procurement, Management, Monitoring, & Evaluation of IT Resources.*
- *IS Audit Methods, Techniques and Components.*
- *IS Governance & Audit Research: existing vs. Knowledge Gaps.*

Main References

1. **ISACA,** Certified in the Governance of Enterprise IT (**CGEIT**) Review Manual, ISACA, 2017.
2. **ISACA,** Certified Information Systems Auditor (**CISA**), ISACA, 2017.
3. Gerard Blokdyk, **Corporate governance of information technology**, the Art of Service 2017

Additional References

1. Robert Moeller, **Executive's Guide to IT Governance: Improving Systems Processes with Service Management, COBIT, and ITIL**, Wiley Corporate, 2013.
2. Various international journals and articles related to IS/IT Governance and IS/IT Audit topics.

Course

Topics in Information Technology Investment and Productivity Management

Code: IS185903	CREDIT: 3	Semester: 2/3

Release: 00

Course Description

Kontradiksi Produktivitas Teknologi Informasi (Information Technology Productivity Paradox) adalah sebuah keadaan dimana perbandingan antara biaya atau usaha (input) yang dikeluarkan masih lebih besar dibandingkan dengan manfaat atau luaran (output) pada penggunaan teknologi informasi (TI). Kajian terhadap investasi dan produktivitas dalam bidang TI menjadi penting karena porsi belanja TI yang meningkat signifikan, dapat memicu kesenjangan biaya terhadap manfaat atau input terhadap output yang semakin besar. Belanja TI harus dipandang sebagai sebuah investasi yang perlu dicermati dengan kritis.

Berbeda dengan investasi pada umumnya, investasi TI menyangkut biaya dan manfaat berwujud (tangible) dan tidak berwujud (intangible), langsung dan tidak langsung. Oleh sebab itu, analisis investasi dan produktivitas TI terhadap penggunaan TI untuk mendapatkan solusi terbaik penting dilakukan oleh manajer TI dengan menyertakan biaya dan manfaat berwujud-tidak berwujud dan langsung-tidak langsung. Mata kuliah Topik dalam Manajemen Investasi dan Produktivitas Teknologi Informasi, memberikan pengalaman dan keahlian kepada mahasiswa untuk melakukan analisis investasi dan produktivitas TI dengan menggunakan metode-metode finansial, non finansial, econometric, atau pengukuran kinerja TI yang relevan lainnya. Metode pembelajaran yang digunakan adalah literature review, kontekstual, dan proyek akhir menuju kepada penelitian/ Tesis berbasis Manajemen Investasi dan Produktivitas TI.

Materi matakuliah ini fokus pada konsep investasi TI, konsep produktivitas TI, pengukuran kinerja investasi TI, pengukuran produktivitas TI, teknik-teknik finansial untuk investasi TI, intangibility, cost-benefit analysis, Information economic, balanced Score card, multi factor scoring, portofolio TI, benchmarking, fungsi-fungsi produktivitas termasuk econometric, literature review, dan publikasi jurnal berbasis literature review. Tugas akhir mata kuliah dimaksudkan untuk menghasilkan sebuah proposal penelitian / tesis berupa dokumen analisis investasi TI dan memberikan bekal kepada mahasiswa agar mampu menjawab permasalahan pada bidang investasi dan produktivitas TI.

Information Technology productivity paradox is a situation where the ratio of cost or efforts (input) incurred is still greater than the benefits or output (output) of the use of information technology (IT). IT investment and productivity studies are important because significant portion of IT spending increases, leading to greater gaps between costs and benefits or between output and inputs. IT spending should be viewed as an investment that needs to be critically scrutinized.

Course

Topics in Information Technology Investment and Productivity Management

Code: IS185903	CREDIT: 3	Semester: 2/3

Release: 00

Unlike investments in general, IT investments involve tangible and intangible costs and both directly and indirectly. Therefore, to get the best solution, it is important to IT managers to conduct IT investment and IT productivity analysis which tangible and intangible and intangible costs and benefits. Topics in Investment Management and Information Technology Productivity courses, provide experience and expertise to students to analyze IT investments and productivity using financial, nonfinancial, econometric, or other relevant IT performance measurement methods. Learning method used is literature review, contextual, and final project to the research / Thesis based on Investment Management and IT Productivity.

The Course Subjects focus on IT investment concepts, IT productivity concepts, IT investment performance measurement, IT productivity measurement, financial techniques for IT investments, intangibility, cost-benefit analysis, economic information, balanced score cards, multi factor scoring, benchmarking, productivity functions including econometric, literature review, and journal publication based on literature review. The final assignment of the course is intended to produce a research proposal / thesis in the form of IT investment analysis document and provide the student the capability to answer problem in field of investment and IT productivity.

Expected Learning Outcome

Lulusan akan mampu untuk:

- Mengidentifikasi alternatif-alternatif pilihan investasi TI yang paling sesuai berdasarkan kebutuhan informasi organisasi.
- Mengidentifikasi, membuat, dan mengelola kebijakan yang terkait dengan investasi TI sehingga didapatkan tingkat produktivitas TI yang optimal.
- Mengelola dan mengoordinasi penggunaan sumberdaya TI
- Mengaplikasikan keahlian mengelola organisasi TI yang efektif, memastikan efisiensi dan efektifitas penyampaian layanan TI, mengelola penggunaan TI dan sumber dayanya
- Menerapkan konsep dan metode untuk mengembangkan dan mengimplementasikan rencana jangka panjang untuk merancang, menyampaikan, dan menggunakan sistem informasi organisasi untuk mencapai tujuan dan sasaran domain strategis
- Menganalisis efek dan dampak SI pada industri, perusahaan, dan institusi; membuat dan mengelola mekanisme pengawasan yang digunakan organisasi untuk mengevaluasi, mengarahkan, dan memantau TI organisasi dan menetapkan praktik untuk meminimalkan dampak lingkungan dan merencanakan kelangsungan hidup perusahaan jangka panjang.

Course

Topics in Information Technology Investment and Productivity Management

Code: IS185903	CREDIT: 3	Semester: 2/3

Release: 00

Graduates will be able to:

- *Identify the most suitable alternative IT investment options based on the information needs of the organization.*
- *Identify, create, and manage policies related to IT investment to obtain an optimal level of IT productivity.*
- *Manage and coordinate the use of IT resources*
- *Apply the skills to manage an effective IT organization, ensure the efficiency and effectiveness of IT service delivery, manage the use of IT and its resources*
- *Implement concepts and methods to develop and implement long-term plans for designing, delivering, and using organizational information systems to achieve strategic domain goals and objectives*
- *Analyze the effect and impact of IS on industries, firms, and institutions; create and manage the oversight mechanisms by which an organization evaluates, directs, and monitors organizational IT and establish practices for minimizing environmental impacts and planning for long-term firm viability.*

Course Learning Outcome

Specific Skills :

- Mampu menyelaraskan investasi TI dan produktivitas TI
- Mampu merencanakan, mengelola dan mengkoordinasikan sumber daya informasi
- Mampu mengelola portofolio TI
- Membuat justifikasi finansial SI/TI
- Mengelola strategi pengadaan SI/TI
- Terlibat dalam perencanaan strategis SI/TI
- Merencanakan dan meningkatkan keberlanjutan produktivitas
- Mengoptimalkan utilisasi infrastruktur dan sumber daya SI/TI
- Mengelola sekumpulan standard, kebijakan, memahami hukum dan peraturan kunci untuk keputusan investasi TI

- *Aligning IT investment and IT productivity.*
- *Planning, managing, and coordinating information resources.*

Course

Topics in Information Technology Investment and Productivity Management

Code: IS185903	CREDIT: 3	Semester: 2/3

Release: 00

- *Managing IT portfolio.*
- *Making financial justifications IS / IT.*
- *Managing the IS / IT procurement strategy.*
- *Engaging in strategic planning of IS / IT.*
- *Planning and improving productivity sustainability.*
- *Optimizing the utilization of infrastructure and IS / IT resources.*
- *Managing a set of standards, policies, understand key laws and regulations for IT investment decisions.*

General Skills : Memiliki ide inovatif TI sebagai solusi permasalahan aktual

Having an innovative IT idea as an actual solution to the problem.

Knowledge :
- Memiliki pengetahuan lingkungan bisnis (termasuk manajemen, organisasi, fungsi, proses bisnis) saat ini & masa dating
- Memiliki pengetahuan yang cukup untuk menguasai persoalan tentang finansial, investasi, dan produktivitas TI
- Mampu meningkatkan kapasitas pembelajaran secara mandiri
- Mampu mendokumentasikan dan menerapkan hasil penelitian dalam rangka pemanfaatannya

- *Having knowledge of current & future business environment (including management, organization, function, business process).*
- *Having adequate knowledge to master the issues of financial, investment, and IT productivity.*
- *Improving the capacity of learning independently.*
- *Documenting and applying research results in order to utilize them.*

Attitude :
- Menjunjung tinggi nilai kemanusiaan dalam menjalankan tugas berdasarkan agama, moral, dan etika;
- Taat hukum dan disiplin dalam kehidupan bermasyarakat dan bernegara;
- Menunjukkan sikap bertanggungjawab atas pekerjaan di bidang keahliannya secara mandiri

Course

Topics in Information Technology Investment and Productivity Management

Code: IS185903	CREDIT: 3	Semester: 2/3

Release: 00

- *Upholding the value of humanity in conducting research based on religion, morals, and ethics.*
- *Obeying the law and discipline in social life and state.*
- *Showing responsibility and independence for the work in the field of his expertise;*

Specific Learning Outcome

Cognitive :
- Mampu menjelaskan konsep investasi TI
- Mampu menjelaskan konsep produktivitas TI
- Mampu membandingkan berbagai tipe dan alternatif investasi TI
- Mampu melakukan perhitungan secara memadai terkait investasi TI dan produktivitas TI
- Mampu memberikan solusi untuk menghindari Kontradiksi Produktivitas TI

- *Able to explain the concept of IT investment*
- *Able to explain the concept of IT productivity*
- *Able to compare different types and alternatives of IT investments*
- *Able to adequately calculate IT investment and IT productivity*
- *Able to provide solutions to avoid IT Productivity Contradictions*

Psychomotor :
- Mampu memberikan solusi terkait persoalan investasi dan produktivitas TI
- Mampu membuat kajian literatur terstruktur dalam manajemen investasi dan produktivitas TI
- Mampu menulis makalah terkait manajemen investasi dan produktivitas TI

- *Able to provide solutions related to investment issues and IT productivity*
- *Able to create a structured literature review in investment management and IT productivity*
- *Able to write papers related to investment management and IT productivity*

Affective :
- Mampu & mau berprilaku jujur
- Mampu & mau berprilaku komunikatif
- Mampu & mau tunduk pada peraturan & perundangan yang berlaku
- Mampu & mau berprilaku bertanggung jawab

Course

Topics in Information Technology Investment and Productivity Management

Code: IS185903	CREDIT: 3	Semester: 2/3

Release: 00

- *Able & willing to behave honestly.*
- *Able & willing to behave communicatively*
- *Able & willing to comply with applicable laws & regulations*
- *Able & willing to behave responsibly*

Course Subjects

- Konsep investasi, manajemen investasi, dan manajemen investasi TI
- Konsep produktivitas TI
- Metode-metode perhitungan tangible dan intangible
- Metode-metode perhtungan langsung dan tidak langsung
- Metode perhitungan econometric
- Fungsi Produktivitas TI
- Pemilihan alternatif investasi terhadap solusi-solusi SI/TI
- Portofolio SI/TI
- Pengukuran Kinerja TI
- Kajian-kajian literatur terdahulu

- *The concept of investment, investment management, and IT investment management*
- *The concept of IT productivity*
- *Tangible and intangible calculation methods*
- *Direct and indirect calculation methods*
- *Econometric calculation method*
- *IT Productivity Function*
- *Selection of investment alternatives to IS / IT solutions*
- *IS / IT portfolio*
- *IT Performance Measurement*
- *Previous literature on IT investment and productivity management*

Main References

Course

Topics in Information Technology Investment and Productivity Management

Code: IS185903	CREDIT: 3	Semester: 2/3

Release: 00

1. Schniederjans, Marc J., Hamaker, Jamie L., Schniederjans, Ashlyn M. (2010). **Information Technology Investment: Decision-Making Methodology second edition, World Scientific Publishing Company**. Singapore: World Scientific Publishing.
2. Parker, Marilyn M & Benson, Robert J. (1990). **Information Economics: Linking Business Performance to Information Technology**. Prentice Hall College Div.

Additional References

1. Digrius, Jack M. Keen Bonnie. (2011). Making Technology Investment Profitable, ROI Road Map to Better Business Cases second edition. New Jersey: John wiley& Son.
2. Scientific journal articles on IT investment and productivity management

Course

Topics in Database Technology

Code: IS185904	CREDIT: 3	Semester: 2/3

Release: 00

Course Description

Selama ini, basis data relasional menjadi pilihan utama untuk penyimpanan data, terutama di dunia aplikasi enterprise. Jika Anda seorang arsitek memulai sebuah proyek baru, satu-satunya pilihan Anda adalah database relasional yang akan digunakan. Tapi alternatif ini tidak pernah ada dimana-mana. Setelah masa dominasi yang panjang, kegembiraan saat ini mengenai database NoSQL. Dalam kuliah ini kita akan membahas berbagai database NOSQL.

Relational databases have become the main choice for data storage, especially in the world of enterprise applications. If you are an architect starting a new project, your only choice is which relational database to use. But this alternative was never ubiquitous. After a long period of domination, the current excitement is regarding NoSQL databases. In this lecture, various NOSQL databases will be discussed.

Expected Learning Outcome

Lulusan akan mampu untuk:

- Mampu menjabarkan konsep teoretis dan metode pengelolaan data terstruktur dan tidak terstruktur serta informasi secara mendalam dalam proses yang dapat meningkatkan kemampuan organisasi mencapai tujuannya
- Mampu menjelaskan konsep dan metode mengelola kompleksitas sistem dan teknologi informasi serta menyelaraskannya dengan strategi organisasi secara umum
- Menganalisis kebutuhan organisasi dan menentukan bagaimana kebutuhan ini dapat ditangani dengan data, informasi dan solusi manajemen konten serta mengelola teknologi pengelolaan data dan informasi
- Mengidentifikasi, membuat dan mengelola kebijakan dan proses organisasi terkait manajemen data dan informasi dengan menyeimbangkan kebutuhan multidimensi seperti kebutuhan hukum dan perundangan, pertimbangan etis dan implikasi kebutuhan teknologi, kebutuhan bisnis organisasi, kualitas data dan kebutuhan beroperasi pada lingkungan internasional
- Mengaplikasikan keahlian merancang dan mengelola organisasi SI yang efektif, memastikan efisiensi dan efektifitas penyampaian layanan, mengatur prinsip manajemen proyek SI, mengelola penggunaan SI dan sumber dayanya
- Mengintegrasikan tahapan iteratif yang meliputi analisis, perancangan, implementasi, dan pengoperasian, mengembangkan dan menerapkan aplikasi TI yang memenuhi kebutuhan pengguna

Course

Topics in Database Technology

Code: IS185904	CREDIT: 3	Semester: 2/3

Release: 00

Graduates will be able to:

- *Implementing concepts and method to process structured and unstructured data and information in a process that can improve organization capability to achieve its goals*
- *Describing concepts and methods to manage the complexity of information systems and technologies and fitting these with the organization's strategy*
- *Analyzing the needs of an organization and determine how those needs can be best addressed with data, information, and content management solutions*
- *Identifing, creating, and managing organizational policies and processes related to data and information management by balancing multidimensional requirements, such as legal and regulatory requirements, ethical considerations and implications of technology decisions, organizational business requirements, data quality issues, and requirements of operating in an international environment.*
- *Applying professional management skills to design and manage an effective IS, ensure operational efficiency and effectiveness in service delivery, govern IS project management principles and manage information systems use.*
- *Integrating iterative processes consisting of analysis, design, implementation, and operations, develop and deploy IT applications that satisfy user needs.*

Course Learning Outcome

Specific Skills :

- Menangkap dan menstrukturisasi data dan informasi degan teknik pemodelan konseptual yang tepat
- Mengembangkan representasi data level logis berdasarkan model konseptual
- Mengimplementasikan solusi basis data untuk melayani sistem yang terdiri dari banyak aplikasi
- Menggunakan manipulasi data dan bahasa retrieaval kontemporer secara efektif
- Memilih teknologi manajemen data yang tepat bersasarkan kebutuhan domain
- Mengamankan data domain dan melindungi privasi user dan hak kekayaan intelektual organisasi
- Membuat infrastruktur scalable untuk data dalam jumlah besar menggunakan teknologi parallel dan terdistribusi
- Mengintegrasikan dan menyiapkan data yang ditangkap dari berbagai sumber untuk keperluan analitical
- Merancang dan mengimplementasikan arsitektur untuk sistem manajemen konten

	Course **Topics in Database Technology**		
	Code: IS185904	CREDIT: 3	Semester: 2/3

Release: 00

- *Capturing and structuring data and information with appropriate conceptual modeling techniques.*
- *Developing a logical level data representation based on a conceptual model.*
- *Implementing database solutions to serve systems consisting of multiple applications.*
- *Using data manipulation and contemporary retrieval languages effectively.*
- *Choosing the right data management technology according to the needs of the domain.*
- *Securing domain data and protect user privacy and organizational intellectual property rights.*
- *Creating a scalable infrastructure for large amounts of data using parallel and distributed technologies.*
- *Integrating and prepare data captured from various sources for analytical purposes.*
- *Designing and implementing the architecture for the content management system.*

General Skills :

- Memiliki ide inovatif TI sebagai solusi permasalahan aktual
- *Having innovative IT ideas as solutions to actual problems.*

Knowledge :

- Memahami dasar-dasar relasional, sistem database berorientasi objek, dan didistribusikan termasuk: model data, arsitektur database, dan manipulasi database
- Teori dan teknik dalam mengembangkan aplikasi database dan mampu menunjukkan kemampuan untuk membangun database menggunakan DBMS (Access, MySql, dsb)
- Perkembangan baru dan tren dalam database.
- Kompleksitas sistem dan teknologi informasi

- *Understanding the fundamentals of relational, object-oriented, and distributed database systems including data models, database architecture, and database manipulation.*
- *Understanding the theories and techniques in developing database applications and being able to demonstrate the ability to build databases using a DBMS (Access, MySql, etc.)*

	Course		
	Topics in Database Technology		
	Code: IS185904	CREDIT: 3	Semester: 2/3

Release: 00

- *Understanding the new developments and trends in the database.*
- *Understanding the complexity of information systems and technology.*

Attitude :
- Menjunjung tinggi nilai kemanusiaan dalam menjalankan tugas berdasarkan agama, moral, dan etika;
- Taat hukum dan disiplin dalam kehidupan bermasyarakat dan bernegara;
- Menunjukkan sikap bertanggungjawab atas pekerjaan di bidang keahliannya secara mandiri

- *Upholding human values in carrying out their duties based on religion, morals, and ethics.*
- *Obeying the law and discipline in the life of society and the state.*
- *Demonstrating an attitude of being responsible for work in their area of expertise independently.*

Specific Learning Outcome

Cognitive :
- Memahami dasar-dasar NOSQL (C2)
- Mahasiswa mampu memahami berbagai penyimpanan data (C2)
- Mahasiswa mampu memilh database NoSQL (C4)

- *Understanding the basics of NOSQL (C2).*
- *Understanding various data storage (C2).*
- *Choosing a NoSQL database (C4).*

Psychomotor :
- Mahasiswa mampu menyimpan data dalam NOSQL(P2)
- Mahasiswa mampu merancang dan mengembangkan arsitektur NoSQL(P2)

- *Storing data in NOSQL(P2).*
- *Designing and developing NoSQL(P2) architecture.*

Affective :
- Mahasiswa mampu & mau berprilaku jujur
- Mahasiswa mampu & mau berprilaku komunikatif
- Mahasiswa mampu & mau tunduk pada peraturan & perundangan yang berlaku
- Mahasiswa mampu & mau berprilaku bertanggung jawab

	Course	
	Topics in Database Technology	
Code: IS185904	CREDIT: 3	Semester: 2/3

Release: 00

- *Students are able & willing to behave honestly.*
- *Students are able & willing to behave communicatively.*
- *Students are able & willing to comply with applicable laws & regulations.*
- *Students are able & willing to behave responsibly.*

Course Subjects

- Map Reduce
- Key Value Database
- Document Database
- Graph Database
- Data Privacy
- Consistency

Main References

1. Pramod J. Sadalage and Martin Fowler. 2012. NoSQL Distilled: A Brief Guide to the Emerging World of Polyglot Persistence (1st ed.). Addison-Wesley Professional.
2. Ian Robinson, Jim Webber, and Emil Eifrem. 2013. Graph Databases. O'Reilly Media, Inc..
3. SQL on Big Data: Technology, Architecture, and Innovation

Course

Topics in Data Integration

Code: IS185905	CREDIT: 3	Semester: 2/3

Release: 00

Course Description

Integrasi data adalah salah satu tantangan utama dalam sebagian besar proyek TI. Dalam konteks perusahaan, masalah integrasi data muncul bilamana data dari sumber terpisah perlu digabungkan sebagai dasar penerapan baru. Dalam konteks Web, teknik integrasi data merupakan fondasi untuk memanfaatkan jumlah sumber data yang dapat diakses publik dan semakin memungkinkan untuk menghasilkan aplikasi seperti portal perbandingan produk, mashup berbasis lokasi, dan mesin pencari data. Dalam mata kuliah ini , mahasiswa akan belajar teknik untuk mengintegrasikan dan membersihkan data dari kumpulan sumber data heterogen yang besar.

Data integration is one of the main challenges in most IT projects. In an enterprise context, data integration issues arise when data from separate sources needs to be combined as a basis for new implementations. In the context of the Web, data integration techniques are the foundation for leveraging the number of publicly accessible data sources and increasingly enabling the generation of applications such as product comparison portals, location-based mashups, and data search engines. In this course, students will learn techniques for integrating and cleaning data from large heterogeneous data source sets.

Expected Learning Outcome

Lulusan akan mampu untuk:

- Mampu menjabarkan konsep teoretis dan metode pengelolaan data terstruktur dan tidak terstruktur serta informasi secara mendalam dalam proses yang dapat meningkatkan kemampuan organisasi mencapai tujuannya
- Menganalisis kebutuhan organisasi dan menentukan bagaimana kebutuhan ini dapat ditangani dengan data, informasi dan solusi manajemen konten serta mengelola teknologi pengelolaan data dan informasi
- Mengidentifikasi, membuat dan mengelola kebijakan dan proses organisasi terkait manajemen data dan informasi dengan menyeimbangkan kebutuhan multidimensi seperti kebutuhan hukum dan perundangan, pertimbangan etis dan implikasi kebutuhan teknologi, kebutuhan bisnis organisasi, kualitas data dan kebutuhan beroperasi pada lingkungan internasional

Graduates will be able to:

- *Implementing concepts and method to process structured and unstructured data and information in a process that can improve organization capability to achieve its goals*

MASTER OF INFORMATION SYSTEMS CURRICULUM SYLLABUS 2018			
	Course **Topics in Data Integration**		
	Code: IS185905	CREDIT: 3	Semester: 2/3

Release: 00

- *Analyze the needs of an organization and determine how those needs can be best addressed with data, information, and content management solutions*
- *Identify, create, and manage organizational policies and processes related to data and information management by balancing multidimensional requirements, such as legal and regulatory requirements, ethical considerations and implications of technology decisions, organizational business requirements, data quality issues, and requirements of operating in an international environment.*

Course Learning Outcome

Specific Skills :

- Menangkap dan menstrukturisasi data dan informasi degan teknik pemodelan konseptual yang tepat
- Mengembangkan representasi data level logis berdasarkan model konseptual
- Mengimplementasikan solusi basis data untuk melayani sistem yang terdiri dari banyak aplikasi
- Menggunakan manipulasi data dan bahasa retrieaval kontemporer secara efektif
- Memilih teknologi manajemen data yang tepat bersasarkan kebutuhan domain
- Membuat infrastruktur scalable untuk data dalam jumlah besar menggunakan teknologi parallel dan terdistribusi
- Mengintegrasikan dan menyiapkan data yang ditangkap dari berbagai sumber untuk keperluan analytical
- Merancang dan mengimplementasikan arsitektur untuk sistem manajemen konten

- *Developing a logical level data representation based on a conceptual model.*
- *Implementing database solutions to serve systems consisting of multiple applications.*
- *Using data manipulation and contemporary retrieval languages effectively.*
- *Choosing the right data management technology according to the needs of the domain.*
- *Creating a scalable infrastructure for large amounts of data using parallel and distributed technologies.*
- *Integrating and preparing data captured from various sources for analytical purposes.*
- *Designing and implementing the architecture for the content management system.*

MASTER OF INFORMATION SYSTEMS CURRICULUM SYLLABUS 2018

Course

Topics in Data Integration

Code: IS185905	CREDIT: 3	Semester: 2/3

Release: 00

Knowledge :

- Memahami dasar-dasar relasional, sistem database berorientasi objek, dan didistribusikan termasuk: model data, arsitektur database, dan manipulasi database
- Teori dan teknik dalam mengembangkan aplikasi database dan mampu menunjukkan kemampuan untuk membangun database menggunakan DBMS (Access, MySql, dsb)
- Perkembangan baru dan tren dalam database.

- *Understanding the fundamentals of relational, object-oriented, and distributed database systems including data models, database architecture, and database manipulation.*
- *Understanding the theories and techniques in developing database applications and able to demonstrate the ability to build databases using a DBMS (Access, MySql, etc.).*
- *Understanding the new developments and trends in the database.*

Attitude :

- Menjunjung tinggi nilai kemanusiaan dalam menjalankan tugas berdasarkan agama, moral, dan etika;
- Taat hukum dan disiplin dalam kehidupan bermasyarakat dan bernegara;
- Menunjukkan sikap bertanggungjawab atas pekerjaan di bidang keahliannya secara mandiri

- *Upholding human values in carrying out their duties based on religion, morals, and ethics.*
- *Obeying the law and discipline in the life of society and the state.*
- *Demonstrating an attitude of being responsible for work in their area of expertise independently.*

Specific Learning Outcome

Cognitive :

- Memahami memahami arsitektur integrasi data (C2)
- Mahasiswa mampu membuat data dalam bentuk semantic web (C2)
- Mahasiswa memahami berbagai algoritma integrasi data(C2)

- *Understanding data integration architecture (C2)*
- *Creating data in the form of a semantic web (C2)*
- *Understanding various data integration algorithms(C2)*

Course

Topics in Data Integration

Code: IS185905	CREDIT: 3	Semester: 2/3

Release: 00

Psychomotor :
- Mahasiswa mampu mengintegrasi data yang mempunyai perbedaan struktur(P2)
- Mahasiswa mampu memilih teknik integrasi data (P3)

- *Integrating data that have different structures (P2)*
- *Choosing the appropriate data integration techniques (P3)*

Affective :
- Mahasiswa mampu & mau berprilaku jujur
- Mahasiswa mampu & mau berprilaku komunikatif
- Mahasiswa mampu & mau tunduk pada peraturan & perundangan yang berlaku
- Mahasiswa mampu & mau berprilaku bertanggung jawab

- *Students are able & willing to behave honestly*
- *Students are able & willing to behave communicatively*
- *Students are able & willing to comply with applicable laws & regulations*
- *Students are able & willing to behave responsibly*

Course Subjects

- Heterogeneity and Distributedness
- String Matching
- Schema Matching and Mapping
- Data Matching
- INTEGRATION ARCHITECTURES
- Data Fusion

Main References

1. AnHai Doan, Alon Halevy, and Zachary Ives. 2012. Principles of Data Integration (1st ed.). Morgan Kaufmann Publishers Inc., San Francisco, CA, USA.

Additional References

MASTER OF INFORMATION SYSTEMS CURRICULUM SYLLABUS 2018				
	Course **Topics in Data Integration**			
	Code: IS185905	CREDIT: 3	Semester: 2/3	
Release: 00				

Course

Topics in Semantic Web

Code: IS185906	CREDIT: 3	Semester: 2/3

Release: 00

Course Description

Kita dikelilingi oleh data dimana-mana. Dengan membantu kita membuat keputusan yang lebih baik, data memainkan peran sentral dalam kehidupan kita sehari-hari. Semakin banyak jumlah sumber data, didorong oleh individu dan organisasi, berkontribusi terhadap banjir data ini dengan berbagi data mereka dengan orang lain. Namun, data terkunci di balik antarmuka pemrograman yang berpemilik, tidak dapat diandalkan, dan bahkan tidak stabil yang mencegah kita memanfaatkannya dengan optimal. Linked Data memiliki potensi untuk merevolusi cara kita menemukan, mengakses, mengintegrasikan, dan menggunakan data; hanya dengan cara World Wide Web telah merevolusi cara kita mengkonsumsi dan menghubungkan dokumen. Mata kuliah ini akan mengenalkan Anda pada prinsip dasar dan teknologi Linked Data untuk memungkinkan berbagi data dan penggunaan kembali dalam skala besar. Disertai oleh ontologi, yaitu representasi pengetahuan berdasarkan teknologi Semantic Web, Linked Data berfungsi sebagai blok bangunan utama dari Web Data yang baru muncul.

We are surrounded by data everywhere. By helping us make better decisions, data plays a central role in our daily lives. An increasing number of data sources, driven by individuals and organizations, are contributing to this data flood by sharing their data with others. However, data is locked behind proprietary, unreliable, and even unstable programming interfaces that prevent us from making the most of it. Linked Data has the potential to revolutionize the way we discover, access, integrate and use data; just the way the World Wide Web has revolutionized the way we consume and connect documents. This course will introduce you to the basic principles and technologies of Linked Data to enable data sharing and reuse at scale. Accompanied by ontologies, namely Knowledge representations based on Semantic Web technology, Linked Data serves as the main building block of the emerging Web Data.

Expected Learning Outcome

Lulusan akan mampu untuk:

- Mampu menjabarkan konsep teoretis dan metode pengelolaan data terstruktur dan tidak terstruktur serta informasi secara mendalam dalam proses yang dapat meningkatkan kemampuan organisasi mencapai tujuannya
- Menganalisis kebutuhan organisasi dan menentukan bagaimana kebutuhan ini dapat ditangani dengan data, informasi dan solusi manajemen konten serta mengelola teknologi pengelolaan data dan informasi

	Course		
	Topics in Semantic Web		
	Code: IS185906	CREDIT: 3	Semester: 2/3

Release: 00

- Mengidentifikasi, membuat dan mengelola kebijakan dan proses organisasi terkait manajemen data dan informasi dengan menyeimbangkan kebutuhan multidimensi seperti kebutuhan hukum dan perundangan, pertimbangan etis dan implikasi kebutuhan teknologi, kebutuhan bisnis organisasi, kualitas data dan kebutuhan beroperasi pada lingkungan internasional

Graduates will be able to:

- *Implementing concepts and method to process structured and unstructured data and information in a process that can improve organization capability to achieve its goals*
- *Analyze the needs of an organization and determine how those needs can be best addressed with data, information, and content management solutions*
- *Identify, create, and manage organizational policies and processes related to data and information management by balancing multidimensional requirements, such as legal and regulatory requirements, ethical considerations and implications of technology decisions, organizational business requirements, data quality issues, and requirements of operating in an international environment.*

Course Learning Outcome

Specific Skills :

- Menangkap dan menstrukturisasi data dan informasi degan teknik pemodelan konseptual yang tepat
- Mengembangkan representasi data level logis berdasarkan model konseptual
- Mengimplementasikan solusi basis data untuk melayani sistem yang terdiri dari banyak aplikasi
- Menggunakan manipulasi data dan bahasa retrieaval kontemporer secara efektif
- Memilih teknologi manajemen data yang tepat bersasarkan kebutuhan domain
- Membuat infrastruktur scalable untuk data dalam jumlah besar menggunakan teknologi parallel dan terdistribusi
- Mengintegrasikan dan menyiapkan data yang ditangkap dari berbagai sumber untuk keperluan analytical
- Merancang dan mengimplementasikan arsitektur untuk sistem manajemen konten

- *Capturing and structuring data and information with appropriate conceptual modeling techniques.*
- *Developing a logical level data representation based on a conceptual model.*

	Course		
	Topics in Semantic Web		
	Code: IS185906	CREDIT: 3	Semester: 2/3

Release: 00

- *Implementing database solutions to serve systems consisting of multiple applications.*
- *Using data manipulation and contemporary retrieval languages effectively.*
- *Choosing the right data management technology according to the needs of the domain.*
- *Creating a scalable infrastructure for large amounts of data using parallel and distributed technologies.*
- *Integrating and prepare data captured from various sources for analytical purposes.*
- *Designing and implementing the architecture for the content management system.*

Knowledge :

- Memahami dasar-dasar relasional, sistem database berorientasi objek, dan didistribusikan termasuk: model data, arsitektur database, dan manipulasi database
- Teori dan teknik dalam mengembangkan aplikasi database dan mampu menunjukkan kemampuan untuk membangun database menggunakan DBMS (Access, MySql, dsb)
- Perkembangan baru dan tren dalam database.

- *Understanding the fundamentals of relational, object-oriented, and distributed database systems including data models, database architecture, and database manipulation*
- *Understanding the theories and techniques in developing database applications and able to demonstrate the ability to build databases using a DBMS (Access, MySql, etc.).*
- *Understanding the new developments and trends in databases.*

Attitude :

- Menjunjung tinggi nilai kemanusiaan dalam menjalankan tugas berdasarkan agama, moral, dan etika;
- Taat hukum dan disiplin dalam kehidupan bermasyarakat dan bernegara;
- Menunjukkan sikap bertanggungjawab atas pekerjaan di bidang keahliannya secara mandiri

- *Upholding human values in carrying out their duties based on religion, morals, and ethics.*
- *Obeying the law and discipline in the life of society and the state.*

	Course		
	Topics in Semantic Web		
Code: IS185906	CREDIT: 3	Semester: 2/3	

Release: 00

- *Demonstrating an attitude of being responsible for work in their area of expertise independently.*

Specific Learning Outcome

Cognitive :
- Memahami dasar-dasar Semantic Web dan Linked Data (C2)
- Mahasiswa mampu membuat data dalam bentuk semantic web (C2)
- Mahasiswa memahami ontology reasoning(C2)

- *Understanding the basics of Semantic Web and Linked Data (C2)*
- *Creating data in the form of a semantic web (C2)*
- *Understanding ontology reasoning(C2)*

Psychomotor :
- Mahasiswa mampu menggunakan vocabulary yang sudah ada(P2)
- Mahasiswa mampu melakukan reasoning berbasis ontology

- *Students are able to use existing vocabulary (P2).*
- *Students are able to do ontology-based reasoning.*

Affective :
- Mahasiswa mampu & mau berprilaku jujur
- Mahasiswa mampu & mau berprilaku komunikatif
- Mahasiswa mampu & mau tunduk pada peraturan & perundangan yang berlaku
- Mahasiswa mampu & mau berprilaku bertanggung jawab

- *Students are able & willing to behave honestly.*
- *Students are able & willing to behave communicatively.*
- *Students are able & willing to comply with applicable laws & regulations.*
- *Students are able & willing to behave responsibly.*

Course Subjects

- Semantic Web
- RDF
- Ontology

	Course		
	Topics in Semantic Web		
	Code: IS185906	CREDIT: 3	Semester: 2/3

Release: 00

- Query Processing
- Reasoning

Main References

1. Tim Berners-Lee, James Hendler and Ora Lassila. The Semantic Web. Scientific American, 284 (5), pp. 34-43, 2001
2. Pascal Hitzler, Markus Krötzsch and Sebastian Rudolph. Foundations of Semantic Web Technologies. Chapman & Hall/CRC, 2009
3. Antoniou and van Harmelen (2004): A Semantic Web Primer. MIT Press.
4. Heath and Bizer (2011): Linked Data: Evolving the Web into a Global Data Space. Free online version."

Additional References

Course

Topics in Data Mining and Business Analytics

Code: IS185907	CREDIT: 3	Semester: 2/3

Release: 00

Course Description

Perkembangan yang begitu cepat dalam pengoleksian data dan teknologi penyimpanan data telah menimbulkan berbagai organisasi dan bisnis untuk mengakumulasi jumlah data dalam ukuran yang sangat besar. Di sisi lain, proses untuk mengekstraksi informasi yang bermanfaat bagi organisasi telah menunjukkan tantangan yang sangat sulit. Berbagai alat dan tenik tradisional untuk menganlisis data bahkan tidak dapat digunakan karena begitu besarnya ukuran data yang tersedia. Dalam kontek ini, sifat alami dari data nontradisional menyebabkan teknik-teknik tradisional bahkan tidak dapat digunakan walaupun ukuran data yang dianalisis berukuran relatif kecil. Dalam beberapa kasus lainnya, permasalahan yang harus dijawab tidak dapat diselesaikan menggunakan teknik analisis data yang ada, dan dengan demikian metode-metode baru perlu dikembangkan untuk menyelesaikan masalah tersebut.

Penggalian data adalah proses untuk menemukan informasi yang bermanfaat dalam repositori data dalam ukuran yang sangat besar secara otomatis. Teknik-teknik penggalian data digunakan untuk mengeksplorasi basis data berukuran besar guna menemukan pola-pola baru dan bermanfaat yang sebelumnya sangat sulit untuk ditemukan. Penggalian data merupakan teknologi yang memadukan metode-metode analisis data tradisional dengan algoritma-algoritma yang rumit untuk memproses data dengan ukuran yang sangat besar. Penggalian data juga membuka kesempatan menarik untuk mengeksplorasi dan menganalisis jenis-jenis data baru dan juga untuk menganalisis jenis-jenis data lama menggunakan berbagai cara yang baru.

The rapid development of data collection and data storage technology have led organizations and businesses to accumulate enormous amounts of data. On the other hand, the process of extracting useful information for organizations has shown tough challenges. Various traditional tools and techniques for analyzing data cannot even be used because of the large data size available. In this context, the nature of non-traditional data means that traditional techniques cannot even be used even though the size of the data analyzed is relatively small. In other cases, the problem to be answered cannot be solved using existing data analysis techniques, and thus new methods need to be developed to solve the problem.

Data mining is the process of automatically finding useful information in extensive data repositories. Data mining techniques are used to explore large databases to find new sound patterns that were previously very difficult to find. Data mining is a technology that combines traditional data analysis methods with complex algorithms to process huge data. Data mining also opens up exciting

Course

Topics in Data Mining and Business Analytics

Code: IS185907	CREDIT: 3	Semester: 2/3

Release: 00

opportunities to explore and analyze new types of data as well as to analyze old data types using new ways.

Expected Learning Outcome

Lulusan akan mampu untuk:

- Menganalisis kebutuhan organisasi dan menentukan bagaimana kebutuhan tersebut dapat dikaitkab dengan kebutuhan data, informasi, dan solusi manajemen konten serta teknologi pengelolaan data dan informasi
- Mengidentifikasi, membuat, dan mengelola kebijakan dan proses organisasi terkait manajemen data dan informasi dengan menyeimbangkan kebutuhan multidimensi seperti kebutuhan hukum dan perundangan, pertimbangan etis dan implikasi kebutuhan teknologi, kebutuhan bisnis organisasi, kualitas data, dan kebutuhan pengoperasiannya dalam linkup internasional

Graduates will be able to:

- *Analyze the needs of an organization and determine how those needs can be best addressed with data, information, and content management solutions.*
- *Identify, create, and manage organizational policies and processes related to data and information management by balancing multidimensional requirements, such as legal and regulatory requirements, ethical considerations and implications of technology decisions, organizational business requirements, data quality issues, and requirements of operating in an international environment.*

Course Learning Outcome

Specific Skills :

- Menangkap dan melakukan strukturisasi data dan informasi degan teknik pemodelan konseptual yang tepat
- Menggunakan manipulasi data dan bahasa retrieaval kontemporer secara efektif
- Memilih teknologi manajemen data yang tepat berdasarkan kebutuhan domain
- Mengintegrasikan dan menyiapkan data yang diperoleh dari berbagai sumber untuk keperluan analitik
- Memilih dan menggunakan metode analitik yang tepat
- Menganalisis data menggunakan metode kontemporer pengolahan data tingkat lanjut

Course

Topics in Data Mining and Business Analytics

Code: IS185907	CREDIT: 3	Semester: 2/3

Release: 00

- *Capturing and structuring data and information with appropriate conceptual modeling techniques*
- *Using data manipulation and contemporary retrieval languages effectively*
- *Choosing the right data management technology based on the needs of the domain*
- *Integrating and preparing data obtained from various sources for analytical purposes.*
- *Selecting and using appropriate analytical methods.*
- *Analyzing data using contemporary methods of advanced data processing*

General Skills :

- Mampu meningkatkan kapasitas pembelajaran secara mandiri yang terkait dengan dengan penggalian data
- Mampu mendokumentasikan, menyimpan, mengamankan, dan menemukan kembali data hasil penelitian yang terkait dengan topik dalam penggalian dalam rangka menjamin kesahihan dan mencegah plagiasi

- *Increasing independent learning capacity related to data mining.*
- *Documenting, storing, securing, and rediscovering research data related to Topics in Data Mining in order to ensure validity and prevent plagiarism.*

Knowledge :

- Mampu meningkatkan kapasitas pembelajaran secara mandiri yang terkait dengan topik dalam penggalian data dari perspektif algoritma
- Mampu mengaplikasikan konsep dan algoritma penggalian data untuk menyelesaikan persoalan nyata
- Mampu mengaplikasikan pengetahuan yang diperoleh sebagai dasar untuk melakukan penelitian terkait dalam bidang penggalian data

- *Increasing independent learning capacity related to Topics in data mining from an algorithm perspective.*
- *Applying data mining concepts and algorithms to solve real problems.*
- *Applying the knowledge obtained as a basis for conducting related research in the field of data mining.*

Attitude :

- Menjunjung tinggi nilai kemanusiaan dalam menjalankan tugas berdasarkan agama, moral, dan etika;
- Taat hukum dan disiplin dalam kehidupan bermasyarakat dan bernegara;

Course

Topics in Data Mining and Business Analytics

Code: IS185907	CREDIT: 3	Semester: 2/3

Release: 00

- Menunjukkan sikap bertanggungjawab atas pekerjaan di bidang keahliannya secara mandiri

- *Upholding human values in carrying out their duties based on religion, morals, and ethics.*
- *Obeying the law and discipline in the life of society and the state.*
- *Demonstrating an attitude of being responsible for work in their area of expertise independently.*

Specific Learning Outcome

Cognitive :

- Mampu menjelaskan tipe-tipe data dasar, kualitas data, teknik-teknik praproses data, dan pengukuran keserupaan dan ketidakserupaan
- Mampu menjelaskan pengklasifikasi berbasis pohon keputusan dan beberapa isu penting terkait dengan persoalan klasifikasi seperti overfitting, evaluasi kinerja, dan perbandingan beberapa model pengklasifikasi
- Mampu menjelaskan beberapa teknik klasifikasi penting seperti sistem berbasis aturan, pengklasifikasi berbasis tetangga terdekat, pengksifikasi Bayesian, jaringan saraf tiruan, support vector machine, dan pengklasifikasi gabungan
- Mampu menjelaskan analisis asosiasi dasar seperti frequent itemsets, aturan asosiasi, dan beberapa algoritma untuk membangkitkannya
- Mampu menjelaskan bagaimana analisis asosiasi dapat diperluas untuk mendapatkan pola-pola sekuensial
- Mampu menjelaskan berbagai jenis klaster dan beberapa teknik klasterisasi
- Mampu menjelaskan beberapa jenis deteksi anomali dan analisis pencilan
- Mampu menjelaskan beberapa teknik dasar terkait dengan penggalian data teks seperti penelusuran topik, kategorisasi teks, analisis sentimen, dan rangkuman teks

- *Explaining basic data types, data quality, data preprocessing techniques, and measurement of similarity and dissimilarity.*
- *Explaining decision tree-based classifiers and some important issues related to classification problems such as overfitting, performance evaluation, and comparison of several classifier models.*

Course

Topics in Data Mining and Business Analytics

Code: IS185907	CREDIT: 3	Semester: 2/3

Release: 00

- *Explaining several important classification techniques such as rule-based systems, nearest neighbor-based classifiers, Bayesian classifiers, artificial neural networks, support vector machines, and composite classifiers.*
- *Explaining basic association analysis such as frequent itemsets, association rules, and some algorithms to generate them.*
- *Explaining how association analysis can be extended to obtain sequential patterns.*
- *Explaining various types of clusters and some clustering techniques.*
- *Explaining several types of anomaly detection and outlier analysis.*
- *Explaining some basic techniques related to extracting text data such as topic search, text categorization, sentiment analysis, and text summaries.*

Psychomotor :

- Mampu membuat kajian kepustakaan terkini secara komprehensip dalam penggalian data
- Mampu menulis makalah secara konstruktif dalam penggalian data

- *Making comprehensive review of the latest literature in data mining.*
- *Writing papers constructively in data mining.*

Affective :

- Mampu dan mau berperilaku jujur
- Mampu dan mau berperilaku komunikatif
- Mampu dan mau tunduk pada peraturan dan perundangan yang berlaku
- Mampu dan mau berprilaku secara bertanggung jawab

- *Able and willing to behave honestly.*
- *Able and willing to behave communicatively.*
- *Able and willing to comply with applicable laws and regulations.*
- *Able and willing to behave responsibly.*

Course Subjects

1. Data dan praproses data
2. Pemodelan prediktif
3. Analisis asosiasi
4. Klasterisasi
5. Deteksi anomali dan analisis pencilan
6. Penggalian data teks

Course

Topics in Data Mining and Business Analytics

Code: IS185907	CREDIT: 3	Semester: 2/3

Release: 00

1. *Data and data preprocessing.*
2. *Predictive modeling.*
3. *Association analysis.*
4. *Clustering.*
5. *Anomaly detection and outlier analysis.*
6. *Text data mining.*

Main References

1. Pang-Ning Tan, Michael Steinbach, and Vipun Kumar, “introduction to Data Mining”, Pearson, Addsion-Wesley, 2006.
2. Jiawei Han, Micheline Kamber, and Jian Pei, “Data Mining: Concepts and Techniques”, Third edition, Elsevier, 2016.

Additional References

1. Luis Torgo, "*Data Mining with R: Learning with Case Studies*", CRC Press, (*e-book*), 2011.
2. Yanchang Zao, "R and Data Mining: Examples and Case Studies", Published by Elsevier, (e-book), 2013.
3. Various international journal articles related to data mining, knowledgde and data engineering, text mining, dan data science topics.

Course

Topics in Optimization and Management Science

Code: IS185908	CREDIT: 3	Semester: 2/3

Release: 00

Course Description

Pada mata kuliah ini mahasiswa akan belajar teori kompleksitas sebuah permasalahan (real-world problems) dari sudut pandang komputasi. Selanjutnya, mahasiswa akan belajar beberapa algoritma heuristics dan algoritma aproksimasi untuk menyelesaikan permasalahan (real-world problems) dengan tingkat kompleksitas tinggi, Skillsnya untuk permasalahan optimasi kombinatorik.

In this course, students will learn the theory of complexity of a problem (real-world problems) from a computational point of view. Furthermore, students will learn some heuristics algorithms and approximation algorithms to solve real-world problems with a high level of complexity, skills for combinatoric optimization problems.

Expected Learning Outcome

Lulusan diharapkan mampu:

- Mendeskripsikan konsep dan metode untuk mengelola sistem informasi and teknologi yang kompleks dan menyesuaikannya dengan strategi perusahaan
- Mengidentifikasi, membuat, dan memanajemen kebijakan dan proses perusahaan yang berkaitan dengan data dan manajemen informasi dengan cara menyeimbangkan kebutuhan multi dimensi seperti kebutuhan peraturan dan regulasi, pertimbangan dan implikasi etik dari keputusan teknologi, kebutuhan bisnis organisasi, isu kualitas data, dan kebutuhan operasional dalam lingkup internasional

Graduates will be able to:

- *Describe concepts and methods to manage the complexity of information systems and technologies and fitting these with the organization's strategy.*
- *Identify, create, and manage organizational policies and processes related to data and information management by balancing multidimensional requirements, such as legal and regulatory requirements, ethical considerations and implications of technology decisions, organizational business requirements, data quality issues, and requirements of operating in an international environment.*

Course Learning Outcome

Course

Topics in Optimization and Management Science

Code: IS185908	CREDIT: 3	Semester: 2/3

Release: 00

Specific Skills	:	● Mampu memilih dan menggunakan metode analitis yang tepat ● *Able to select and utilize a correct analytical method*
General Skills	:	● Mampu menganalisis data menggunakan metode kontemporer tingkat lanjut ● *Able to analyze data using advanced contemporer methods*
Knowledge	:	● Mampu menjelaskan kompleksitas sistem dan teknologi informasi ● *Able to explain the information system and technology complexity*
Attitude		● Menjunjung tinggi nilai kemanusiaan dalam menjalankan tugas berdasarkan agama, moral, dan etika; ● Taat hukum dan disiplin dalam kehidupan bermasyarakat dan bernegara; ● Menunjukkan Attitude bertanggungjawab atas pekerjaan di bidang keahliannya secara mandiri ● *Uphold the value of humanity in carrying out duties based on religion, morals, and ethics;* ● *Obey the law and discipline in social life and state;* ● *Demonstrate responsible attitude to work in the field of his expertise independently*

Specific Learning Outcome

Cognitive	:	● Mahasiswa mampu menjelaskan teori yang melatarbelakangi pendekatan heuristics untuk optimasi, seperti *local search*, *genetics algorithm*, dan varianya. ● Mahasiswa mampu mengidentifikasi kelemahan dan kelebihan dari metode-metode heuristics. ● Mahasiswa mampu secara kritis mengevaluasi kualitas dari berbagai algoritma heuristics untuk optimasi.

	Course **Topics in Optimization and Management Science**	
	Code: IS185908 | CREDIT: 3 | Semester: 2/3	

Release: 00

- *Able to explain the basic theory of heuristic approach for optimization, such as local search, genetics algorithm, and the others.*
- *Able to identify the weaknesses and stregths of various heuristics methods*
- *Able to perform a critical quality assessment of various heuristics algorithm for optimization*

Psychomotor :

- Mampu menerapkan algoritma heuristics dalam bahasa pemrograman atau tools lainya untuk menyelesaikan permasalahan kombinatorik.
- Terbiasa menggunakan tool/framework untuk algoritma meta-heuristic/hyper-heuristics.
- Mampu menerapkan pengetahuan dan pemahamanya tentang pendekatan heuristics untuk menyelesaiakan permasalahan optimasi yang baru.

- *Able to implement heuristic algorithm in a programming language or other tools for solving the combinatoric problems*
- *Able to operate tools/frameworks for meta-heuristic/hyper-heuristic algorithm*
- *Able to implement knowledge and his ability of heuristic approach to solve a new optimization problem*

Affective :

- Mahasiswa mampu & mau berprilaku jujur
- Mahasiswa mampu & mau berprilaku komunikatif
- Mahasiswa mampu & mau tunduk pada peraturan & perundangan yang berlaku
- Mahasiswa mampu & mau berprilaku bertanggung jawab

- *Able and willing to act honestly*
- *Able and willing to behave communicately*
- *Able and willing to obey the prevailing laws and regulations*
- *Able and willing to behave responsibly*

Course Subjects

Course

Topics in Optimization and Management Science

Code: IS185908	CREDIT: 3	Semester: 2/3

Release: 00

1. **Teori Kompleksitas Komputasi**: Kompleksitas, Permasalahan komputasi, Algoritma komputasi, *Intractable and Undecidable Problems*, Kompleksitas Waktu, Permasalahan NP-Complete.
2. **Algoritma Approksimasi**: Konsep algoritma optimasi, Pengukuran kinerja algoritma optimasi, Worst-case Analysis.
3. **Heuristic Search untuk Permasalahan Optimasi**: Permasalahan optimasi, Linear programming, Integer programming, Optimiasi diskrit/kontinyu/kombinatorik, Algoritma aproksimasi, Algoritma greedy dan neighbourhood search, Dasar meta-heuristics, Dasar algoritma evolusioner.
4. **Algoritma Meta-heuristics**: Permasalahan kombinatorik, Algoritma local-search: simulated annealing, tabu-search, variable neighbourhood search.
5. **Algoritma Hyper-heuristics**: Konsep dasar hyper-heuristics, Selection hyper-heuristics, Generation hyper-heuristic.
6. **Algoritma Evolusioner**: Representasi, Operator genetika, Mekanisme seleksi, Mekanisme diverisfikasi, Contraints handling techniques.
7. **Studi Kasus:** Educational timetabling, Travelling salesman problem.

1. ***Computation complexity theory****: Complexity, computation problem, computation algorithm, Intractable and Undecidable Problems, time complexity, and NP-complete problem*
2. ***Approximate algorithm****: Optimization algorithm concept, optimization algorithm performance measurement, worst-case analysis*
3. ***Heuristic Search for optimization problem****: optimization problem, linear programming, integer programming, discrete/continous/combinatoric optimization, approximation algorithm, greedy and neighbourhood search, meta-heuristics basic, evolutionary algorithm basic*
4. ***Meta-heuristics algorithms****: combinatoric problems, local-search algorithm: simulated anneling, tabu-search, variable neighbourhood search*
5. ***Hyper-heuristics algorithms****: hyper-heuristics basic, selection hyper-heuristics, generation hyper-heuristics*
6. ***Evolutionary algorithms****: Representation, genetic operator, selection mechanism, diversification mechanism, constraints handling techniques*
7. ***Case studies****: Educational timetabling, travelling salesman problem*

Main References

1. Burke, Edmund K., and Graham Kendall. Search methodologies. Springer Science Business Media, Incorporated, 2005.

MASTER OF INFORMATION SYSTEMS CURRICULUM SYLLABUS 2018			
	Course **Topics in Optimization and Management Science**		
	Code: IS185908	CREDIT: 3	Semester: 2/3
Release: 00			

Additional References

1. Papadimitriou, C.H. and Steiglitz, K. Combinatorial optimization: algorithms and complexity. Courier Corporation. 1998.

MASTER OF INFORMATION SYSTEMS CURRICULUM SYLLABUS 2018			
	Course **Topics in Decision Support Systems**		
	Code: IS185909	CREDIT: 3	Semester: 2/3
Release: 00			

Course Description

Ketersediaan informasi oleh bisnis sangat dibutuhkan seiring dengan pesatnya perkembangan teknologi informasi. Hal tersebut memungkinkan pelaku bisnis untuk mengolah data mereka sehingga menjadi informasi yang sangat bermanfaat untuk mendukung pengambilan keputusan bisnis yang dijalankan. Pelaku bisnis yang tidak dapat memenuhi kebutuhan akan informasi akan tergilas dengan pesaingnya. Course sistem pendukung keputusan akan memberikan pengalaman kepada mahasiswa untuk memahami kebutuhan bisnis akan informasi untuk pengambilan keputusan dan bagaimana informasi tersebut diolah dari data mentah yang ada. Selain itu mahasiswa juga diarahkan untuk membuat sistem yang dapat digunakan untuk mengolah data menjadi informasi dengan metode yang telah dipelajari sebelumnya dan dapat diaplikasikan di permasalahan yang nyata. Untuk itu, metode pembelajaran yang digunakan adalah dengan memberikan proyek secara kelompok untuk menganalisis permasalahan dan menemukan sebuah solusi dengan merekomendasikan metode yang tepat untuk menyelesaikan permasalahan tersebut. Selain itu mahasiswa juga diarahkan untuk membuat sistem yang merupakan representasi solusi tersebut. Materi Course ini adalah dasar tentang teori keputusan, keputusan terkomputerisasi, permasalahan analisis data dengan metode tertentu dan implementasinya. Mahasiswa dapat menghasilkan sebuah karya sebuah sistem pendukung keputusan yang dapat digunakan oleh mahasiswa sebagai portofolio dan bekal agar unggul dalam persaingan di dunia kerja. Selain itu mahasiswa juga mendapatkan pandangan terhadap topik sistem pendukung keputusan pada suatu bidang Skills tertentu

The availability of information by businesses is very much needed along with the rapid development of information technology. This allows people to process their data so that it becomes very useful information to support business decision making. Business who cannot fulfill the need for information will be run over by their competitors. Decision support systems course will provide students with experience to understand the business needs of information for decision making and how that information is processed from existing raw data. In addition, students are also directed to create a system that can be used to process data into information. Students can use methods that have been studied in the first year of study so that it can be applied to real problems. For this reason, the learning method used is to give projects in groups to analyze problems and find a solution by recommending the right method to solve the problem. In addition, students are also directed to create a system that represents the solution. The material of this course is the basis of decision theory, computerized decisions, data analysis problems with certain methods and their implementation. Students can produce a work of a decision support system that can be used by them as a portfolio and provision to excel in the competition in the real world. In addition, students also get views on the topic of decision support systems in a certain field.

MASTER OF INFORMATION SYSTEMS CURRICULUM SYLLABUS 2018			
	Course **Topics in Decision Support Systems**		
	Code: IS185909	CREDIT: 3	Semester: 2/3
Release: 00			

Expected Learning Outcome

- Mengintegrasikan proses berulang yang meliputi analisis, desain, implementasi dan operasi, pengembangan dan menjalankan IT yang dapat memuaskan pengguna
- Mengidentifikasi dan mengevaluasi metode dan trend baru pada IS; mengembangkan model aktifitas innovative domain
- Mendeskripsikan berbagai aktifitas organisasi dengan cara pemanfaatan teknologi informasi untuk meningkatkan cara kegiatan tersebut terstruktur dan terlaksana

- *Integrate iterative processes consisting of analysis, design, implementation, and operations, develop and deploy IT applications that satisfy user needs.*
- *identify and evaluate new IS methods and trends; develop innovative domain activity models; develop a plan to exploit new and emerging methods and technologies and new ways of structuring and performing organization activities as well as estimating the benefits, negative consequences of their implementation.*
- *Describe various organization activities in order to make use of information technologies to improve the way those activities are structured and are performed.*

Course Learning Outcome

Specific Skills :
- Mengidentifikasi dan memilih dari desain sistem dan alternatif implementasi
- Menyebarkan sistem baru ke penggunaan organisasi
- Berinovasi dengan memanfaatkan teknologi atau metodologi yang baru
- Mengaplikasikan penyelesaian masalah secara kreatif untuk masalah teknologi

- *Identifying and selecting from system design and implementation alternatives*
- *Deploying the new system for organizational use*
- *Innovate by utilizing new technologies or methodologies*
- *Applying creative problem solving to technology problems*

Knowledge :
- Mampu menjabarkan bagaimana IT mendukung pelaksanaan aktivitas-aktivitas bisnis

- *Able to describe how IT supports the implementation of business activities*

MASTER OF INFORMATION SYSTEMS CURRICULUM SYLLABUS 2018				
	Course **Topics in Decision Support Systems**			
	Code: IS185909	CREDIT: 3	Semester: 2/3	
Release: 00				

Specific Learning Outcome

Cognitive :
- Mahasiswa mampu memahami dengan menjelaskan beragam pendekatan SPK untuk menyelesaikan permasalahan-permasalahan yang spesifik.
- Mahasiswa mampu mengidentifikasi Simon's model dan komponen DSS

- *Students are able to understand by explaining various DSS approaches to solving specific problems.*
- *Students are able to identify Simon's model and DSS components*

Psychomotor :
- Mahasiswa mampu membuat skenario dan menimbang faktor pendukung dan efek sampingnya.
- Mahasiswa mampu memproduksi solusi untuk permasalahan pendukung keputusan pada paper ilmiah kedalam sebuah sistem atau library perangkat lunak.
- Mahasiswa mampu menggunakan berbagai metode untuk menyelesaikan permasalahan pendukung keputusan dengan tepat dalam permasalahan bidang Skills

- *Students are able to make scenarios and consider the supporting factors and side effects.*
- *Students are able to produce solutions for decision support problems in scientific papers into a system or software library.*
- *Students are able to use various methods to solve decision support problems appropriately in Skills field problems*

Affective :
- Mahasiswa mampu menegosiasikan metode untuk solusi permasalahan, membuktikan dan melaporkan bahwa metode tersebut terbukti dapat dan tepat untuk menyelesaikan permasalahan
- Mengusulkan dan membuat dokumentasi terkait topik terbaru mengenai perkembangan metode sistem pendukung keputusan untuk permasalahan dalam bidang Skills

- *Students are able to negotiate methods for problem solving, prove and report that the method is proven to be effective and appropriate to solve problems*

	Course	
	Topics in Decision Support Systems	
Code: IS185909	CREDIT: 3	Semester: 2/3

Release: 00

- *Propose and create documentation related to the latest topics regarding the development of decision support system methods for problems in the Skills field*

Course Subjects

1. Decision Making dan Decision Support System,
2. Konsep Pengambilan Keputusan,
3. Identifikasi Simon's Model,
4. Identifikasi Komponen DSS,
5. Implementasi Data Mining untuk SPK
6. Implementation predictive analytics untuk SPK

1. *Decision Making and Decision Support System (DSS),*
2. *The Concept of Decision Making,*
3. *Identification of Simon's Model,*
4. *Identify DSS Components,*
5. *Implementation of Data Mining for DSS*
6. *Implementation of predictive analytics for DSS*

Main References

1. Turban, Aronson, and Liang. Decision Support Systems and Intelligent Systems, Seventh Edition

Additional References

1. Linda A. Winters-Miner, et.al, Practical Predictive Analytics and Decisioning Systems for Medicine, Elsevier.

MASTER OF INFORMATION SYSTEMS CURRICULUM SYLLABUS 2018				
	Course **Topics in Modelling and Simulation Systems**			
	Code: IS185910	CREDIT: 3	Semester: 2/3	
Release: 00				

Course Description

Topik Dalam Simulasi dan Pemodelan Sistem mencakup kompetensi yang memungkinkan lulusan memiliki kemampuan menformulasikan, memodelkan, serta melakukan simulasi terhadap sistem diskrit maupun sistem kontinyu untuk menganalisis kebijakan dan strategi, dalam rangka mengatur dan meningkatkan kinerja organisasi.

Topics in System Simulation and Modeling include competencies that enable graduates to have the ability to formulate, model, and perform simulations on discrete systems and continuous systems to analyze policies and strategies, in order to regulate and improve organizational performance.

Expected Learning Outcome

Lulusan akan mampu untuk:

- Mejelaskan konsep pengembangan solusi TI
- Menjelaskan konsep perancangan dan implementasi untuk tujuan strategis organisasi
- Mampu menjelaskan perencanaan strategis
- Menjelaskan berbagai kegiatan organisasi untuk memanfaatkan teknologi informasi untuk meningkatkan cara kegiatan tersebut terstruktur dan dilakukan.
- Memahami konsep dan metode implementasi sistem dan penerapan sistem untuk penggunaan organisasi.
- Mengidentifikasi dan mengevaluasi metode dan tren IS baru; mengembangkan model aktivitas domain yang inovatif; mengembangkan rencana untuk mengeksploitasi metode dan teknologi baru dan yang muncul dan cara-cara baru untuk menyusun dan melakukan kegiatan organisasi serta memperkirakan manfaat dan konsekuensi negatif dari penerapannya.

Graduates will be able to:

- *Explain the concept of IT solution development*
- *Explain the concept of design and implementation for the organization's strategic objectives*
- *Able to explain strategic planning*
- *Describe various organization activities in order to make use of information technologies to improve the way those activities are structured and are performed.*

Course

Topics in Modelling and Simulation Systems

Code: IS185910	CREDIT: 3	Semester: 2/3

Release: 00

- *Understand concept and methods systems implementation and the deployment of systems to organizational use.*
- *Identify and evaluate new IS methods and trends; develop innovative domain activity models; develop a plan to exploit new and emerging methods and technologies and new ways of structuring and performing organization activities as well as estimating the benefits and negative consequences of their implementation.*

Course Learning Outcome

Ketrampilan Khusus :
- Mampu menangkap dan menstrukturisasi data dan informasi dengan teknik pemodelan konseptual yang tepat
- Mengembangkan dan mengimplementasikan kebijakan dan proses manajemen informasi organisasi
- Memilih dan menggunakan metode analitis yang tepat untuk pengembangan model dan simulasi sistem
- Mengaplikasikan penyelesaian masalah secara kreatif untuk masalah teknologi
- Berkontribusi terhadap perkembangan organisasi dan manajemen perubahan

Specific Skills :
- *Students are able to carry out strategic analysis of IS*
- *Students are able to make IS strategic planning*
- *Students are able to align systems and information technology to the organization's business strategy*
- *Students are able to develop the concept of developing IT solutions*
- *Students are able to manage information system development strategies*

Ketrampilan Umum :
- Mampu menjabarkan aktivitas bisnis organisasi yang menggunakan TI
- Mampu menjelaskan struktur aktivitas bisnis dalam organisasi
- Mampu menjelaskan komponen-komponen proses bisnis

General Skills :
- *Able to describe the organization's business activities that use IT*
- *Able to explain the structure of business activities in the organization*
- *Able to explain the components of business processes*

MASTER OF INFORMATION SYSTEMS CURRICULUM SYLLABUS 2018			
	Course **Topics in Modelling and Simulation Systems**		
	Code: IS185910	CREDIT: 3	Semester: 2/3
Release: 00			

Pengetahuan	:	● Memiliki Knowledge tentang sistem dan teknologi informasi ● Memiliki Knowledge tentang konsep perancangan model dan simulasi untuk implementasi dalam rangka mencapai tujuan strategis organisasi
Knowledge	*:*	● *Have knowledge about information systems and technology* ● *Have knowledge about the concept of model design and simulation for implementation in order to achieve the organization's strategic goals*
Sikap	:	● Menjunjung tinggi nilai kemanusiaan dalam menjalankan tugas berdasarkan agama, moral, dan etika; ● Taat hukum dan disiplin dalam kehidupan bermasyarakat dan bernegara; ● Menunjukkan Attitude bertanggungjawab atas pekerjaan di bidang keahliannya secara mandiri
Attitude	*:*	● *Upholding human values in carrying out their duties based on religion, morals, and ethics;* ● *Obey the law and discipline in the life of society and the state;* ● *Demonstrate an attitude of being responsible for work in their area of expertise independently*

Specific Learning Outcome

Kognitif	:	● Mahasiswa mampu memahami konsep teoretis dan metode untuk formulasi model. ● Mahasiswa mampu memahami kerangka pengembangan model dan simulasi ● Mahasiswa mampu memahami lingkungan internal dan eksternal yang mempengaruhi formulasi model ● Mahasiswa mampu mengembangkan model dan simulasi untuk meningkatkan kinerja sistem yang dimodelkan
Cognitive	*:*	● *Students are able to understand theoretical concepts and methods for model formulation.* ● *Students are able to understand the framework of model development and simulation*

	Course **Topics in Modelling and Simulation Systems**	
	Code: IS185910 / CREDIT: 3 / Semester: 2/3	

Release: 00

- *Students are able to understand the internal and external environment that affects the formulation of the model*
- *Students are able to develop models and simulations to improve the performance of the system being modeled*

Psikomotor :
- Mahasiswa mampu mengidentifikasi permasalahan dalam sistem yang dimodelkan
- Mahasiswa mampu mengidentifikasi variable yang signifikan dalam sistem
- Mahasiswa mampu mengembangkan model
- Mahasiswa mampu melakukan simulasi terhadap model
- Mahasiswa mampu mengembangkan skenario model untuk meningkatkan kinerja sistem

Psychomotor *:*
- *Students are able to identify problems in the system being modeled*
- *Students are able to identify significant variables in the system*
- *Students are able to develop models*
- *Students are able to perform simulations on models*
- *Students are able to develop model scenarios to improve system performance*

Afektif :
- Mahasiswa mampu & mau berprilaku jujur
- Mahasiswa mampu & mau berprilaku komunikatif
- Mahasiswa mampu & mau tunduk pada peraturan & perundangan yang berlaku
- Mahasiswa mampu & mau berprilaku bertanggung jawab

Affective *:*
- *Students are able & willing to behave honestly*
- *Students are able & willing to behave communicatively*
- *Students are able & willing to comply with applicable laws & regulations*
- *Students are able & willing to behave responsibly*

Course Subjects

MASTER OF INFORMATION SYSTEMS CURRICULUM SYLLABUS 2018			
	Course **Topics in Modelling and Simulation Systems**		
	Code: IS185910	CREDIT: 3	Semester: 2/3
Release: 00			

- Dasar-dasar pemodelan dan simulasi; Proses Pembuatan Model, Pengertian Simulasi, Manfaat Simulasi, Proses Pengerjaan Simulasi, Kelebihan dan Kekurangan Model Simulasi, Klasifikasi Model Simulasi;
- Konsep dasar sistem simulasi; Struktur Dasar Model Simulasi, Langkah-Langkah Simulasi, Contoh-Contoh Model Simulasi;
- Pendekatan-pendekatan dalam pemodelan; Model Simulasi Sistem Deterministik, Model Simulasi Sistem Stokastik, Contoh-Contoh Model Simulasi Deterministik dan Stokastik, Perubahan Diskrit, Perubahan Kontinyu;
- Distribusi probabilitas dan statistik simulasi; Peran Distribusi Probabilitas dan Statistik dalam Simulasi, Konsep Dasar Statistik, Distribusi Sampling, Ukuran Sampel, Beberapa Jenis Distribusi Data;
- Model simulasi diskrit; Konsep dasar simulasi diskrit, Komponen –Komponen Simulasi Diskrit, Contoh-Contoh Model Simulasi Diskrit, Bahasa Simulasi Arena;
- Model simulasi kontinyu (Sistem dinamik); Tahapan Pengembangan Model Sistem Dinamik, Formulasi Sebuah Hipotesis Dinamik, Karakteristik Model Sistem Dinamik, Contoh-Contoh Model Sistem Dinamik;
- Sistem Dinamik sebagai Sarana System Thinking; Variabel Model Sistem Dinamik, Diagram Kausatik SD, Diagram Flow Model, Simulasi dengan Bahasa Dynamo, Ventana Simulation, Project Dynamics;
- Validasi Model; Konsep Dasar Validasi, Jenis-Jenis Validasi, Langkah-Langkah Validasi, Prosentase Error Rate (E1), Prosentase Error Variance (E2);
- Perencanaan skenario; Konsep Dasar Skenario, Peran Skenario pada Model Simulasi, Perbedaan antara Perencanaan Skenario dan Peramalan.

- *Fundamentals of modeling and simulation; Model Making Process, Definition of Simulation, Benefits of Simulation, Process of Working on Simulation, Advantages and Disadvantages of Simulation Models, Classification of Simulation Models;*
- *Basic concept of simulation system; Simulation Model Basic Structure, Simulation Steps, Simulation Model Examples;*
- *Approaches to modeling; Deterministic System Simulation Model, Stochastic System Simulation Model, Examples of Deterministic and Stochastic Simulation Models, Discrete Change, Continuous Change;*
- *Probability distribution and simulation statistics; The Role of Probability Distribution and Statistics in Simulation, Basic Concepts of Statistics, Sampling Distribution, Sample Size, Several Types of Data Distribution;*

Course

Topics in Modelling and Simulation Systems

Code: IS185910	CREDIT: 3	Semester: 2/3

Release: 00

- *Discrete simulation models; Discrete simulation basic concepts, Discrete Simulation Components, Discrete Simulation Model Examples, Arena Simulation Language;*
- *Continuous simulation model (System dynamics); Stages of System Dynamic Model Development, Formulation of a Dynamic Hypothesis, Characteristics of System Dynamic Models, Examples of System Dynamic Models;*
- *System Dynamic as a Means of System Thinking; Variable System Dynamic Model, SD Causatic Diagram, Flow Model Diagram, Simulation with Dynamo Language, Ventana Simulation, Project Dynamics;*
- *Model Validation; Basic Concepts of Validation, Types of Validation, Validation Steps, Percentage Error Rate (E1), Percentage Error Variance (E2);*
- *Scenario planning; Basic Concept of Scenario, Role of Scenario in Simulation Model, Difference between Scenario Planning and Forecasting.*

Main References

1. **Erma Suryani**, Pemodelan dan Simulasi, Graha Ilmu, 2005.
   ***Erma Suryani**, Modeling and Simulation, Graha Ilmu, 2005.*
2. **Erma Suryani,** System Dynamics Framework, 2012.
3. **John D. Sterman**, Business Dynamics, Systems Thinking and Modeling for a Complex World, 2000.
4. **Vensim User Guide**, 2003
5. **Vensim Modeling Guide**, 2003
6. **W. David Kelton, Randall P. Sadowski, Nancy B. Zupick,** Simulation with Arena, Mc. Graw Hill, 2010.

Additional References

1. **Jurnal – jurnal internasional dan artikel** terkait “pemodelan dan simulasi”.
   International journals and articles related to “modeling and simulation”.
2. **Hague, P.,** Forecasting & Scenario Planning, B2B International, 2010
3. **Barlas, Y.,**Multiple tests for validation of system dynamics type of simulation models, European Journal of Operational Research 42 (1999) pp. 59-87.

Course

Topics in System Dynamics and Its Application in Various Fields

Code: IS185911	CREDIT: 3	Semester: 2/3

Release: 00

Course Description

Topik Dalam Sistem Dinamik dan Aplikasinya di berbagai Bidang mencakup kompetensi yang memungkinkan lulusan memiliki kemampuan memformulasikan sistem, memodelkan sistem kompleks, serta melakukan simulasi sistem dinamik di berbagai bidang untuk mendapatkan pola perilaku sistem yang dinamis, menyelesaikan berbagai permasalahan sistem kompleks, serta dapat meningkatkan kinerja sistem.

Topics in System Dynamics and its Applications in various fields include competencies that enable graduates to have the ability to formulate systems, model complex systems, and perform dynamic system simulations in various fields to obtain dynamic system behavior patterns, solve various complex system problems, and can improve system performance.

Expected Learning Outcome

Lulusan akan mampu untuk:

- Menjelaskan konsep pengembangan solusi TI
- Menganalisis kompleksitas sistem dan teknologi informasi
- Mampu menjelaskan konsep perancangan dan implementasi untuk tujuan strategis organisasi
- Mampu menjelaskan berbagai kegiatan organisasi untuk memanfaatkan teknologi informasi untuk meningkatkan cara kegiatan tersebut terstruktur dan dilakukan.
- Memahami konsep dan metode implementasi sistem dan penerapan sistem untuk penggunaan organisasi.
- Mampu mengidentifikasi dan mengevaluasi metode dan tren IS baru; mengembangkan model aktivitas domain yang inovatif; mengembangkan rencana untuk mengeksploitasi metode dan teknologi baru dan yang muncul dan cara baru untuk menyusun dan melakukan aktivitas organisasi serta memperkirakan manfaat, konsekuensi negatif dari penerapannya.

Graduates will be able to:

- *Explaining the concept of IT solution development*
- *Analyzing the complexity of information systems and technology*
- *Explaining the concept of design and implementation for the organization's strategic goals*
- *Describe various organization activities in order to make use of information technologies to improve the way those activities are structured and are performed.*

Course

Topics in System Dynamics and Its Application in Various Fields

Code: IS185911	CREDIT: 3	Semester: 2/3

Release: 00

- *Understanding the concept and methods of systems implementation and the deployment of systems to organizational use.*
- *Identifying and evaluating new IS methods and trends; develop innovative domain activity models; develop a plan to exploit new and emerging methods and technologies and new ways of structuring and performing organization activities as well as estimating the benefits, negative consequences of their implementation.*

Course Learning Outcome

Specific Skills :
- Mengembangkan dan mengimplementasikan kebijakan dan proses manajemen informasi organisasi
- Memilih dan menggunakan metode analitis yang tepat
- Memilih antara pendekatan pengembangan sistem
- Merencanakan dan meningkatkan keberlanjutan

- *Developing and implementing organizational information management policies and processes.*
- *Selecting and using appropriate analytical methods.*
- *Choosing between systems development approaches.*
- *Planning and improving sustainability.*

General Skills :
- Mampu menjabarkan aktivitas bisnis organisasi yang menggunakan TI
- Mampu menjelaskan struktur aktivitas bisnis dalam organisasi
- Mampu menjelaskan komponen-komponen proses bisnis
- Mampu menjabarkan bagaimana IT mendukung pelaksanaan aktivitas-aktivitas bisnis
- Mengembangkan konsep keberlanjutan bisnis

- *Able to describe the organization's business activities that use IT.*
- *Able to explain the structure of business activities in the organization.*
- *Able to explain the components of business processes.*
- *Able to describe how IT supports the implementation of business activities.*
- *Able to develop the concept of business sustainability.*

Knowledge :
- Memiliki pengetahuan tentang kompleksitas sistem dan teknologi informasi
- Memiliki pengetahuan tentang perencanaan strategis organisasi

	Course **Topics in System Dynamics and Its Application in Various Fields**	
	Code: IS185911 / CREDIT: 3 / Semester: 2/3	

Release: 00

- Memiliki pengetahuan tentang pengelolaan sumber daya pengembangan sistem eksternal

- *Having knowledge about the complexity of systems and information technology.*
- *Having Knowledge about organizational strategic planning.*
- *Having knowledge about the management of external system development resources.*

Attitude :

- Menjunjung tinggi nilai kemanusiaan dalam menjalankan tugas berdasarkan agama, moral, dan etika;
- Taat hukum dan disiplin dalam kehidupan bermasyarakat dan bernegara;
- Menunjukkan sikap bertanggungjawab atas pekerjaan di bidang keahliannya secara mandiri

- *Upholding human values in carrying out their duties based on religion, morals, and ethics.*
- *Obeying the law and discipline in the life of society and the state.*
- *Demonstrating an attitude of being responsible for work in their area of expertise independently.*

Specific Learning Outcome

Cognitive :

- Mahasiswa mampu memahami konsep teoritis dan metode untuk formulasi sistem kompleks.
- Mahasiswa mampu memahami permasalahan dalam sistem kompleks.
- Mahasiswa mampu memahami lingkungan internal dan eksternal yang mempengaruhi formulasi sistem kompleks.
- Mahasiswa mampu merencanakan dan mengembangkan model sistem dinamik

- *Students are able to understand theoretical concepts and methods for the formulation of complex systems.*
- *Students are able to understand problems in complex systems.*
- *Students are able to understand the internal and external environment that affects the formulation of complex systems.*
- *Students are able to plan and develop dynamic system models.*

Course

Topics in System Dynamics and Its Application in Various Fields

Code: IS185911	CREDIT: 3	Semester: 2/3

Release: 00

Psychomotor :

- Mahasiswa mampu menganalisis sistem kompleks
- Mahasiswa mampu mengembangkan model sistem dinamik
- Mahasiswa mampu melakukan simulasi model sistem dinamik
- Mahasiswa mampu menganalisis perilaku model sistem kompleks
- Mahasiswa mampu mengembangkan skenario model sistem kompleks dan dinamik

- *Students are able to analyze complex systems.*
- *Students are able to develop dynamic system models.*
- *Students are able to simulate dynamic system models.*
- *Students are able to analyze the behavior of complex system models.*
- *Students are able to develop complex and dynamic system model scenarios.*

Affective :

- Mahasiswa mampu & mau berprilaku jujur
- Mahasiswa mampu & mau berprilaku komunikatif
- Mahasiswa mampu & mau tunduk pada peraturan & perundangan yang berlaku
- Mahasiswa mampu & mau berprilaku bertanggung jawab

- *Students are able & willing to behave honestly.*
- *Students are able & willing to behave communicatively.*
- *Students are able & willing to comply with applicable laws & regulations.*
- *Students are able & willing to behave responsibly.*

Course Subjects

Dasar-dasar pemodelan dan simulasi: Proses pembuatan model, Pengertian simulasi, Manfaat simulasi, Proses pengerjaan simulasi, Kelebihan dan Kekurangan model simulasi, Klasifikasi model simulasi; **Kompleksitas Sistem**: Resistensi Kebijakan, Feedback, Dinamika Sistem Multi Loop, Kompleksitas Dinamik, Bounded Rationality, Esensi Simulasi; **Konsep dasar sistem simulasi**: Struktur dasar model Simulasi, Langkah-langkah simulasi; **System Dynamics Modelling**: Model simulasi sistem dinamik; Karakteristik model sistem dinamik, Tahapan pengembangan model sistem dinamik, Variabel model sistem dinamik; **Tools untuk System Thinking** : Causal Loop Diagram, Stock and Flow Diagram, Ventana Simulation; **Project Dynamics** : Modelling Decision Making, Modelling Human Behavior, Modelling Supply Chain Management; **Validasi Model**: Konsep Dasar Validasi; Jenis-Jenis Validasi, Langkah-Langkah Validasi, Prosentase Error Rate (E1), Prosentase Error Variance (E2); **Skenario Model** : Skenario struktur; Skenario parameter, Sensitivity analysis; Prediction model

Course

Topics in System Dynamics and Its Application in Various Fields

Code: IS185911	CREDIT: 3	Semester: 2/3

Release: 00

Fundamentals of modeling and simulation: *Modeling process, Definition of simulation, Benefits of simulation, Process of working on simulation, Advantages and disadvantages of simulation model, Classification of simulation model;* ***System Complexity:*** *Resistance Policy, Feedback, Multi Loop System Dynamics, Dynamic Complexity, Bounded Rationality, Simulation Essence;* ***The basic concepts of the simulation system:*** *The basic structure of the Simulation model, Simulation steps;* ***System Dynamics Modeling:*** *System dynamic simulation model, Characteristics of system dynamic model, Stages of system dynamic model development, Variable of system dynamic model;* ***Tools for System Thinking :*** *Causal Loop Diagram, Stock and Flow Diagram, Ventana Simulation;* ***Project Dynamics:*** *Modeling Decision Making, Modeling Human Behavior, Modeling Supply Chain Management;* ***Model Validation:*** *Basic Concepts of Validation; Types of Validation, Validation Steps, Error Rate Percentage (E1), Error Variance Percentage (E2);* ***Scenario Model:*** *Scenario structure; Parameter scenarios, Sensitivity analysis; Prediction models.*

Main References

1. **Erma Suryani**, Pemodelan dan Simulasi, Graha Ilmu, 2005.
2. **Erma Suryani**, System Dynamics Framework, 2012.
3. **John D. Sterman**, Business Dynamics, Systems Thinking and Modeling for a Complex World, 2000.
4. **Vensim User Guide**, 2003
5. **Vensim Modeling Guide**, 2003

Additional References

1. **International Journals and articles** related to " System Dynamics Modeling and Simulation".
2. **Ernest Doebelin ,** System Dynamics: Modeling, Analysis, Simulation, Design, 2017.
3. **Barlas, Y.,**Multiple tests for validation of system dynamics type of simulation models, European Journal of Operational Research 42 (1999) pp. 59-87.

Course

Topics in Enterprise Systems

Code: IS185912	CREDIT: 3	Semester: 2/3

Release: 00

Course Description

Kompetisi dalam lingkungan bisnis yang senantiasa berubah dewasa ini menuntut organisasi untuk senantiasa melakukan penyesuaian dan inovasi terhadap proses bisnisnya. Kemampuan untuk terus berinovasi dan mengelola proses bisnis menjadi kemampuan kunci. Organisasi membutuhkan sistem dan teknologi informasi yang dapat menyediakan data dan informasi yang tepat, akurat dengan cepat untuk mendukung proses bisnisnya. Sistem Enterprise (SE) merupakan paket perangkat lunak yang menyediakan dukungan otomasi untuk sebagian besar fungsi bisnis seperti akuntansi, keuangan, pemasaran, layanan pelanggan, operasi, pengadaan dll di berbagai bidang industri. Semakin banyak organisasi menerapkan SE seperti Enterprise Resource Planning (ERP), Supply Chain Management (SCM), Business Process Management (BPM) dan Customer Relationship Management (CRM) Systems. Namun, implementasi SE memiliki tantangan tersendiri dan organisasi harus tetap berinovasi. Oleh karena itu, dibutuhkan pemahaman lebih lanjut tentang SE terutama bagaimana SE dapat mendukung keberhasilan organisasi. Matakuliah ini akan memberikan kepada mahasiswa pengetahuan dan pengalaman mengkaji riset terkini dalam bidang manajemen proses bisnis, khususnya SE, untuk menemukan celah dan melakukan penelitian di bidang ini. Untuk itu, metode pembelajaran yang digunakan adalah ceramah, diskusi, tugas berbasis proyek untuk mengkaji riset terkini di bidang SE. Materi matakuliah ini akan fokus pada konsep SE, metodologi implementasi SE dan kajian terkini tentang SE.

Competition in continuously changing business environment today requires an organization to adapt and innovate their business processes. The ability to innovate and manage business process becomes a key to survive the competition. Organisation requires information systems and technology to provide accurate data and information in real time manner to support its business processes. Enterprise Systems (ES) is a software package that automate most business functions such as accounting, finance, marketing, customer service, operation, procurement etc in various industry. More and more organizations implement ES such as Enterprise Resource Planning (ERP), Supply Chain Management (SCM), Business Process Management (BPM) and Customer Relationship Management (CRM) Systems. However, ES implementation pose unique challenges and organization need to innovate. Therefore, further understanding of ES is needed to ensure organizations success. This course provides students with knowledge and experience to review current state-of-the-art in business process management and ES to identify gaps for further study in this fields. Therefore, the learning methods include lecture, discussions, project-based assignments to review research in the fields. The Course Subjects focus on ES concepts, implementation methods and recent studies in the field.

Expected Learning Outcome

MASTER OF INFORMATION SYSTEMS CURRICULUM SYLLABUS 2018			
	Course **Topics in Enterprise Systems**		
	Code: IS185912	CREDIT: 3	Semester: 2/3
Release: 00			

Lulusan akan mampu untuk:

- Mampu menjabarkan berbagai aktivitas organisasi dalam menggunakan teknologi informasi untuk meningkatkan cara aktivitas-aktivitas bisnis tersebut disusun dan dilakukan.
- Mengidentifikasi dan mengevaluasi metode dan trend baru SI, mengembangkan model aktivitas domain yang inovatif, membuat rencana untuk mengeksploitasi metode dan teknologi baru dan cara baru untuk menyusun dan melakukan aktivitas organisasi serta mengestimasi manfaat, konsekuensi buruk dari implementasi.

Graduates will be able to:

- *Describe various organization activities in order to make use of information technologies to improve the way those activities are structured and are performed.*
- *Identify and evaluate new IS methods and trends; develop innovative domain activity models; develop a plan to exploit new and emerging methods and technologies and new ways of structuring and performing organization activities as well as estimating the benefits, negative consequences of their implementation.*

Course Learning Outcome

Specific Skills :

- Memonitor lingkungan teknologi
- Mengaplikasikan penyelesaian masalah secara kreatif untuk masalah teknologi
- Merekomendasikan perkembangan organisasi dan manajemen perubahan
- Menganalisis dan mendokumentasikan aktivitas domain
- Mengidentifikasi kesempatan untuk merancang peningkatan proses
- Mengembangkan rencana implementasi Sistem Enterprise
- Berinovasi dengan memanfaatkan teknologi atau metodologi yang baru

- *Monitor technology environment lingkungan teknologi*
- *Applies creative problem-solving for technological problems.*
- *Recommend organizational development and change management.*
- *Analyze and document organization's activities*
- *Identify opportunities to design process improvement*
- *Develop ES implementation plan*
- *Innovate to utilize technology or new methodologies*

General Skills :

- Mampu meningkatkan kapasitas pembelajaran secara mandiri;

	Course		
	Topics in Enterprise Systems		
	Code: IS185912	CREDIT: 3	Semester: 2/3

Release: 00

- Mampu mendokumentasikan, menyimpan, mengamankan, dan menemukan kembali data hasil penelitian dalam rangka menjamin kesahihan dan mencegah plagiasi;

- *Able to improve learning capability independently;*
- *Able to document, store, protect and retrieve data from research outcome to ensure validity and prevent plagiarism;*

Knowledge :

- Mampu menjabarkan aktivitas bisnis organisasi yang menggunakan TI
- Mampu menjelaskan struktur aktivitas bisnis dalam organisasi
- Mampu menjelaskan komponen-komponen proses bisnis
- Mampu menjabarkan bagaimana IT mendukung pelaksanaan aktivitas-aktivitas bisnis

- *Able to descrive organization business activities that use IT*
- *Able to explain business activities structure in organization*
- *Able to explain business process components*
- *Able to describe how IT supports business activities*

Attitude :

- Menjunjung tinggi nilai kemanusiaan dalam menjalankan tugas berdasarkan agama, moral, dan etika;
- Taat hukum dan disiplin dalam kehidupan bermasyarakat dan bernegara;
- Menunjukkan sikap bertanggungjawab atas pekerjaan di bidang keahliannya secara mandiri

- *Uphold the value of humanity in carrying out duties based on religion, morals, and ethics;*
- *Obey the law and discipline in social life and state;*
- *Demonstrate responsible attitude to work in the field of his expertise independently*

Specific Learning Outcome

Cognitive :

- Mampu menjelaskan konsep proses bisnis dan manajemen proses bisnis
- Mampu menjelaskan konsep integrasi sistem
- Mampu menjabarkan konsep dasar dan evolusi Sistem Enterprise
- Mampu membandingkan berbagai tipe sistem enterprise

	Course		
	Topics in Enterprise Systems		
	Code: IS185912	CREDIT: 3	Semester: 2/3

Release: 00

- Mampu membedakan siklus hidup pengembangan sistem dengan siklus implementasi ERP
- Mampu membedakan strategi implementasi ERP
- Mampu menguraikan aktivitas operasi dan pasca implementasi ERP

- *Able to describe business process and business process management concepts*
- *Able to explain system integration concepts*
- *Able to describe basic concepts and evolution of ES*
- *Able to compare different types of ES*
- *Able to differentiate systems development lifecycle with ERP implementation lifecycle*
- *Able to differentiate ERP implementation strategies*
- *Able to elaborate operational and post implementation ERP activities*

Psychomotor :

- Mampu membuat kajian literatur terstruktur dalam sistem enterprise
- Mampu menulis makalah terkait dalam sistem enterprise

- *Able to conduct structured literature review on ES*
- *Able to write a scientific paper related to ES*

Affective :

- Mampu & mau berprilaku jujur
- Mampu & mau berprilaku komunikatif
- Mampu & mau tunduk pada peraturan & perundangan yang berlaku
- Mampu & mau berperilaku bertanggung jawab

- *Able and willing to act honestly*
- *Able and willing to behave communicatively*
- *Able and willing to obey the prevailing laws and regulations*
- *Able and willing to behave responsibly*

Course Subjects

1. Konsep bisnis, proses bisnis, sistem dan teknologi informasi
2. Siklus manajemen proses bisnis
3. Integrasi Sistem dan evolusi sistem enterprise
4. Siklus hidup pengembangan sistem enterprise
5. Strategi Implementasi sistem enterprise

	Course		
	Topics in Enterprise Systems		
	Code: IS185912	CREDIT: 3	Semester: 2/3

Release: 00

6. Operasi dan pasca implementasi sistem enterprise
7. Inovasi dengan manajemen proses bisnis
8. Inovasi bisnis digital

1. *Business concepts, business processes, systems and information technology*
2. *Business process management cycle*
3. *System integration and evolution of enterprise systems*
4. *Enterprise Systems Implementation Lifecycle*
5. *Enterprise Systems Implementation strategies*
6. *Operation and post-implementation of enterprise systems*
7. *Innovation with business process management*
8. *Digital business innovation*

Main References

1. Brocke, J. V. and Schmiedel, T., BPM – Driving Innovation in a Digital World, Springer, 2015.
2. Dumas, M., La Rosa, M., Mendling, J. & Reijers, H. A, Fundamentals of Business Process Management, Springer, 2013.
3. Motiwalla, Luvai dan Thompson, Jeffrey, Enterprise Systems for Management (2nd Edition), Pearson Education Limited, Essex, 2014.
4. Giachetti, Ronald. E., Design of Enterprise Systems: Theory, Architecture, and Methods, CRC Press, Taylor and Francis Group, Boca Raton, 2010.

Additional References

1. Monk, E., and Wagner, B., Concepts in Enterprise Resource Planning 4th Ed., Course Technology, Cengage Learning, 2013.
2. Kumar, S., Esteves, J. and Bendoly, E., Handbook of Research in Enterprise Systems, SAGE Publications India Pvt Ltd., New Delhi, 2011.
3. Weske, Mathias, Business Process Management: Concepts, Languages, Architectures, Springer-Verlag, Berlin, 2007.
4. Chaffey, D., 2015, Digital Business and e-Commerce Management: Strategy, Implementation and Practice, Pearson Education Limited.
5. Pujawan, N., 2010, Supply Chain Management edisi II, Guna Widya.
6. Jurnal-jurnal internasional dalam topik manajemen proses bisnis, sistem enterprise dan bisnis digital.

MASTER OF INFORMATION SYSTEMS CURRICULUM SYLLABUS 2018				
	Course **Topics in Enterprise Systems**			
	Code: IS185912	CREDIT: 3	Semester: 2/3	
Release: 00				
International journals on the topic of business process management, enterprise systems and digital business				

Course

Topics in Information Technology Architecture for Corporate

Code: IS185913	CREDIT: 3	Semester: 2/3

Release: 00

Course Description

Topics in Arsitektur TI untuk mencakup kompetensi yang memungkinkan lulusan menjadi perancang dan pengembang arsitektur TI untuk berbagai macam korporat (enterprise) yang paling optimal untuk diterapkan pada korporat tersebut.

Topics in Information Technology Architecture for Corporate is designed to cover competencies that enable graduates to become designers and developers of IT architectures that are most optimal to be applied to the various types of companies (enterprises).

Expected Learning Outcome

Lulusan diharapkan mampu:

- Menjelaskan konsep dan metode untuk mengelola sistem informasi dan teknologi yang kompleks dan menyesuaikannya dengan strategi organisasi
- Mengidentifikasi and mengimplementasikan pendekatan formal untuk pengembangan IT architecture, melakukan proses berjenjang dalam pengembangan IT architecture, mengidentifikasi kebutuhan perubahan IT architecture dan mengimplementasikannya.

Graduates will be able to:

- *Describe concepts and methods to manage the complexity of information systems and technologies and fitting these with the organization's strategy.*
- *Identifying and applying a formal approach to EA development, performing the multistage process of developing an EA, identifying the EA change needs, and applying them to the EA.*

Course Learning Outcome

Specific Skills :

- Mampu mengembangkan Knowledge terkait satu/lebih Topics in arsitektur TI untuk korporat melalui riset hingga menghasilkan pengembangan teori, model, atau platform yang teruji.
- Mampu memecahkan permasalahan bisnis / organisasi pada level korporat dengan memanfaatkan arsitektur TI

Course

Topics in Information Technology Architecture for Corporate

Code: IS185913	CREDIT: 3	Semester: 2/3

Release: 00

- *Able to improve the knowledge related to one or more topics in this field by using research and finally able to develop a theory, model and tested platform.*
- *Able to solve business / organization problem at a corporate level by utilizing IT architecture*

General Skills :

- Memiliki ide inovatif TI sebagai solusi permasalahan aktual
- *Having an ability to create an idea to solve actual problem*

Knowledge :

- Memiliki pengetahuan tentang konsep cetak biru TI
- Memiliki pengetahuan tentang konsep arsitektur TI
- Memiliki pengetahuan tentang kerangka kerja pada arsitektur TI
- *Having a knowledge of IT blueprint concept*
- *Having a knowledge of IT architecture concept*
- *Having a knowledge of the framework in IT architecture*

Attitude :

- Menjunjung tinggi nilai kemanusiaan dalam menjalankan tugas berdasarkan agama, moral, dan etika;
- Taat hukum dan disiplin dalam kehidupan bermasyarakat dan bernegara;
- Menunjukkan Attitude bertanggungjawab atas pekerjaan di bidang keahliannya secara mandiri
- *Uphold the value of humanity in carrying out duties based on religion, morals, and ethics;*
- *Obey the law and discipline in social life and state;*
- *Demonstrate responsible attitude to work in the field of his expertise independently*

Specific Learning Outcome

Cognitive :

- Mahasiswa mampu memahami konsep dasar cetak biru TI, arsitektur TI, dan kerangka kerja pada arsitektur TI
- Mahasiswa mampu mengidentifikasi cetak biru TI yang dibutuhkan sebuah korporat
- Mahasiswa mampu mengidentifikasi arsitektur TI yang dibutuhkan sebuah korporat

Course

Topics in Information Technology Architecture for Corporate

Code: IS185913	CREDIT: 3	Semester: 2/3

Release: 00

- Mahasiswa mampu mengidentifikasi kerangka kerja untuk arsitektur TI yang cocok untuk digunakan pada sebuah korporat
- Mahasiswa mampu merancang dan mengembangkan arsitektur TI yang optimal untuk digunakan pada sebuah korporat

- *Students are able to describe IT blueprint, IT architecture, and Framework in IT architecture concepts*
- *Students are able to identify the needs for building an IT blueprint in a corporate*
- *Students are able to identify the needs for IT architecture in a corporate*
- *Students are able to identify the suitable framework of IT architecture for a corporate*
- *Students are able to design and develop an optimal IT architecture for a corporate*

Psychomotor :

- Mahasiswa mampu membuat cetak biru TI untuk sebuah korporat
- Mahasiswa mampu membuat dokumen arsitektur TI yang tepat untuk sebuah korporat

- *Students are able to design an IT blueprint at a corporate level*
- *Students are able to create a good IT architecture document for a corporate*

Affective :

- Mahasiswa mampu & mau berperilaku jujur
- Mahasiswa mampu & mau berperilaku komunikatif
- Mahasiswa mampu & mau tunduk pada peraturan & perundangan yang berlaku
- Mahasiswa mampu & mau berperilaku bertanggung jawab

- *Able and willing to act honestly*
- *Able and willing to behave communicatively*
- *Able and willing to obey the prevailing laws and regulations*
- *Able and willing to behave responsibly*

Course Subjects

Course

Topics in Information Technology Architecture for Corporate

Code: IS185913	CREDIT: 3	Semester: 2/3

Release: 00

- Konsep dasar cetak biru TI
- Konsep dasar arsitektur TI
- Kerangka kerja pada arsitektur TI
- Arsitektur TI untuk korporat
- Penelitian-penelitian terkini topik Arsitektur TI untuk Korporat

- *IT blueprint concepts*
- *IT architecture concepts*
- *Frameworks of IT architecture*
- *IT architecture for corporate (Enterprise Architect)*
- *The current research in Information Technology Architecture for Corporate*

Main References

1. **Steven H. Spewak** (1193), Enterprise Architecture Planning: Developing a Blueprint for Data, Applications, and Technology 2nd Edition, Wiley.
2. **Danny Greefhorst** (2011), Architecture Principles: The Cornerstones of Enterprise Architecture (The Enterprise Engineering Series), Springer.
3. **Scott A. Bernard** (2012), An Introduction to Enterprise Architecture 3rd Edition, AuthorHouse.
4. **Jeanne W. Ross** (2006), Enterprise Architecture as Strategy: Creating a Foundation for Business Execution, Harvard Business Review Press.
5. **Daniel Minoli** (2018), Enterprise Architecture A to Z: Frameworks, Business Process Modeling, SOA, and Infrastructure Technology 2nd Edition, Auerbach Publications.
6. **Jaap Schekkerman** (2008), Enterprise Architecture Good Practices Guide: How to Manage the Enterprise Architecture Practice, Trafford Publishing.
7. **Jaap Schekkerman** (2003), How to Survive in the Jungle of Enterprise Architecture Frameworks: Creating or Choosing an Enterprise Architecture Framework 2nd Edition, Trafford Publishing.
8. **Marc Lankhorst** (2017), Enterprise Architecture at Work: Modelling, Communication and Analysis (The Enterprise Engineering Series) 4th Edition, Springer.
9. **Stefan Bente** (2012), Collaborative Enterprise Architecture: Enriching EA with Lean, Agile, and Enterprise 2.0 practices, Morgan Kaufmann.

Course

Topics in Information Technology Architecture for Corporate

Code: IS185913	CREDIT: 3	Semester: 2/3

Release: 00

Additional References

1. **Carol O'Rourke** (2003), Enterprise Architecture Using the Zachman Framework (MIS), Course Technology.
2. **The Open Group Foundation** (2013), TOGAF 9 Foundation Study Guide 3rd Edition, Van Haren Publishing.
3. **The Open Group Foundation** (2011), TOGAF Version 9.1, Van Haren Publishing.
4. **The Open Group Foundation** (2011), TOGAF Version 9.1: A Pocket Guide, Van Haren Publishing.
5. **Philippe Desfray** (2014), Modeling Enterprise Architecture with TOGAF: A Practical Guide Using UML and BPMN, Morgan Kaufmann.

Course

Topics in System and Network Security

Code: IS185914	CREDIT: 3	Semester: 2/3

Release: 00

Course Description

Dengan semakin berkembangnya interkoneksi dalam jaringan global yang semakin kompleks, operasional komunikasi dan komputasi yang lancar merupakan hal yang sangat penting. Dalam upaya mengamankan sistem dan jaringan yang ada, organisasi perlu mengantisipasi dan mengelola hal-hal yang berkaitan dengan keamanan informasi yang mungkin timbul. Dilain pihak, kejadian berulang seperti adanya virus dan keberhasilan serangan para hacker jelas menunjukkan kelemahan teknologi informasi dan perlunya untuk meningkatkan level keamanan sistem. Untuk itu diperlukan pemahaman yang lengkap terhadap SDLC keamanan, peran dan personel apa saja yang diperlukan, perencanaan keamanan sistem yang komprehensif, pengamanan lingkungan dan internal sistemnya sendiri, serta legal formal dan etika profesional yang diperlukan.

By the increasing of interconnections in global networks, a smooth communications and computing operation become an importance aspect. One of the ways is to secure the existing systems and networks. In an effort to secure existing systems and networks, organizations need to anticipate and manage matters relating to information security that may arise. On the other hand, repeated incidents such as the presence of viruses and successful attacks by hackers clearly demonstrate the weakness of information technology and require to increase the level of system security. To increase the level of system security, it requires a complete understanding of the security in Software Development Life Cycle (SDLC), what roles and personnel are needed, a comprehensive system security plan, environmental and internal security, as well as the formal legal and professional ethics.

Expected Learning Outcome

Lulusan diharapkan mampu:

- Membuat kebijakan dan standard untuk keberlangsungan bisnis, jaminan informasi, perencanaan dan pengimplementasian manajemen resiko, kepercayaan dan keamanan, serta pemulihan bencana dan perlindungan informasi.
- Mengimplementasikan konsep dan keberlangsungan lingkungan dan sosial IT solutions yang selaras dengan tanggung jawab perusahaan dan selaras dengan kebutuhan regulasi dan standar organisasi.

Graduates will be able to:

Course

Topics in System and Network Security

Code: IS185914	CREDIT: 3	Semester: 2/3

Release: 00

- *Developing policy and standard for business continuity, information assurance, planning and implementing risk management, trust, security and safety, as well as disaster recovery and information protection.*
- *Implementation of concept and environmentally and socially sustainable IT solutions that are aligned with the responsibilities of organizations as well as in compliance with legislative and regulatory requirements and industry standards.*

Course Learning Outcome

Specific Skills :

- Mampu menyelaraskan kebijakan dan standard untuk keamanan jaringan dan sistem IT
- Mampu merencanakan keamanan jaringan dan sistem IT
- Mampu mengelola keamanan jaringan dan sistem IT
- Mampu menggali kebutuhan & merancang kebijakan dan standard keamanan jaringan dan sistem IT

- *Able to align the policy and standard for system and network security*
- *Able to plan a suitable system and network security*
- *Able to manage the system and network security*
- *Able to develop a policy and standard for system and network security*

General Skills :

- Mengelola dan implementasi Cybersecurity
- Merespon dan mengelola masalah sistem informasi
- Mengelola resiko sistem informasi
- Melindungi aset TI
- Mengembangkan strategi kepastian informasi

- *Able to manage and implement cybersecurity*
- *Able to response and manage the problems in information security*
- *Able to manage the risks in information system*
- *Able to protect IT assets*
- *Able to develop information assurance strategy*

Knowledge :

- Memiliki pengetahuan lingkungan bisnis (termasuk manajemen, organisasi, fungsi, proses bisnis)
- Memiliki pengetahuan lingkungan TI (termasuk proses, organisasi, aplikasi, infrastruktur, people TI, data)

Course

Topics in System and Network Security

Code: IS185914	CREDIT: 3	Semester: 2/3

Release: 00

- *Having a knowledge of business environments (including management, organization, business functions, business process)*
- *Having a knowledge of IT environments (including process, organization, application, infrastructure, people, and data)*

Attitude :

- Menjunjung tinggi nilai kemanusiaan dalam menjalankan tugas berdasarkan agama, moral, dan etika;
- Taat hukum dan disiplin dalam kehidupan bermasyarakat dan bernegara;
- Menunjukkan Attitude bertanggungjawab atas pekerjaan di bidang keahliannya secara mandiri

- *Uphold the value of humanity in carrying out duties based on religion, morals, and ethics;*
- *Obey the law and discipline in social life and state;*
- *Demonstrate responsible attitude to work in the field of his expertise independently*

Specific Learning Outcome

Cognitive :

- Mahasiswa mampu memahami kebijakan dan standard untuk keamanan jaringan dan sistem
- Mahasiswa mampu mengelola dan mengimplementasi keamanan jaringan dan sistem
- Mahasiswa mampu mengidentifikasi dan memproteksi aset IT
- Mahasiswa mampu menajamen resiko-resiko yang ada dalam IT

- *Able to describe the policy and standards in system and network security*
- *Able to manage and implement the system and network security*
- *Able to identify and protect the IT assets*
- *Able to manage the IT risks*

Psychomotor :

- Mahasiswa mampu mengelola dan mengimplementasikan keamanan jaringan dan sistem
- Mahasiswa mampu membuat kebijakan dan standard untuk keamanan jaringan dan sistem

Course

Topics in System and Network Security

Code: IS185914	CREDIT: 3	Semester: 2/3

Release: 00

- *Able to manage and implement system and network security*
- *Able to develop the policy and standard for system and network security*

Affective :
- Mahasiswa mampu & mau berprilaku jujur
- Mahasiswa mampu & mau berprilaku komunikatif
- Mahasiswa mampu & mau tunduk pada peraturan & perundangan yang berlaku
- Mahasiswa mampu & mau berprilaku bertanggung jawab

- *Able and willing to act honestly*
- *Able and willing to behave communicately*
- *Able and willing to obey the prevailing laws and regulations*
- *Able and willing to behave responsibly*

Course Subjects

- Keamanan: Konsep Keamanan Informasi Utama, Karakteristik Kritis Informasi
- Siklus Hidup Pengembangan Sistem Keamanan: Investigasi, Analisis, Desain Logis, Desain Fisik, Implementasi, Pemeliharaan dan Perubahan
- Profesional Keamanan dan Organisasi: Manajemen Senior, Tim Proyek Keamanan Informasi, Tanggung Jawab Data
- Kebutuhan akan Keamanan: Kebutuhan bisnis, Ancaman, Serangan, Pengembangan Perangkat Lunak yang Aman
- Masalah Hukum, Etika, dan Profesional dalam Keamanan Informasi
- Perencanaan Keamanan: Perencanaan dan Tata Kelola Keamanan Informasi, Standar Kebijakan – Praktik
- Teknologi Keamanan: Firewall dan VPN
- Keamanan Fisik: Kontrol Akses Fisik, Keamanan dan Keselamatan Kebakaran, Sistem Mobile dan Portabel, Kegagalan Utilitas Pendukung dan Collapse Struktur
- Keamanan dan Personalia: Positioning and Staffing, Kebijakan dan Praktek Ketenagakerjaan, Pengendalian Internal
- Pemeliharaan Keamanan Informasi: Model Pemeliharaan Manajemen Keamanan, Forensik Digital

- *Information security: Information security concepts, important characteristic in information*
- *Information security lifecycle: Investigation, analysis, logical design, physical design, implementation, maintenance, and change management*

Course

Topics in System and Network Security

Code: IS185914	CREDIT: 3	Semester: 2/3

Release: 00

- *Security and organization professional: Senior management, Information security project team, data responsibility*
- *Information security requirements: business requirement, threat, attacks, and a safe software development*
- *Law, ethics, and professionalism in information security*
- *Security planning: Information security planning and governance, policy and standards*
- *Security technology: VPN and Firewall*
- *Physical security: Physical access control, fire safety and security, portable and mobile system, support utility failure, structure collapse.*
- *Security and people: Positioning and Staffing, employment policies and practices, internal control*

Main References

1. Whitman, ME and Mattord, HJ. Principles of Information Security, 4th ed., Thomson Courses Technology. 2007.
2. Harold F. Tipton, Mick Krause, Information Security Management Handbook, Auerbach Publication, 2007

Additional References

1. Ronald L. Krutz dan Russell D. Vines, The CISSP Prep Guide: Mastering the Ten Domains of Computer Security, John Wiley&Sons, 2001.
2. Ronald L. Krutz and Russell Dean Vines, The CISM Prep Guide: Mastering the Five Domains of Information Security Management, John Wiley & Sons, Canada, 2003

Course

Topics in Embedded System

Code: IS185915	CREDIT: 3	Semester: 2/3

Release: 00

Course Description

Mata kuliah ini berisi kompetensi yang memungkinkan mahasiswa menjadi perancang dan pengembang untuk berbagai macam sistem yang dikendalikan oleh teknologi informasi dalam bentuk perangkat terbatas (limited device) yang ditanamkan ke dalam sistem tersebut.

This course cover competence that makes students able to be designer and developer for various systems that controlled by information technology in limited device which is also embedded in those systems.

Expected Learning Outcome

Lulusan diharapkan mampu:

- Mahasiswa dapat mengembangkan kapasitas pembelajarannya secara independent dan mengembangkan dirinya untuk bersaing dalam level nasional maupun internasional dengan menerapkan prinsip keberlangsungan dalam pengembangan pengetahuan dan mengimplementasikan teknologi informasi dan komunikasi dalam pekerjaannya
- Mahasiswa mampu mengembangkan dan menyelesaikan produk dan service yang handal dan besar guna mendukung strategi perusahaan dan tujuan operasional suatu perusahaan
- Mahasiswa dapat mengembangkan pengetahuan di satu atau lebih topik dalam sistem tertanam melalui penelitian untuk menciptakan teori, model atau platform yang handal
- Mahasiswa mampu mensolusikan permasalahan bisnis/organisasi dengan menggunakan teknologi informasi berbasis sistem tertanam.

Graduates will be able to:

- *Able to improve the capacity of learning independently and develop themselves to compete at national and international levels by implementing the principle of sustainability in developing knowledge and implementing information and communication technology in the context of their work*
- *Establish agile and scalable delivery of digital products and services capable of supporting enterprise strategic and operational objectives.*
- *Students able to develop knowledge on one or more topics in embedded system through research to produce development of proven theory, model, or platform*

MASTER OF INFORMATION SYSTEMS CURRICULUM SYLLABUS 2018				
	Course **Topics in Embedded System**			
	Code: IS185915	CREDIT: 3	Semester: 2/3	
Release: 00				

- *Students able to solve business/organization's problem using information technology that utilize embedded system*

Course Learning Outcome

Specific Skills :

- Mengembangkan dan mengimplementasikan sistem tertanam
- Memelihara kesesuaian dengan hukum, peraturan dan standar
- Memastikan perlindungan privasi dan integritas memandu seluruh praktek SI
- Memonitor lingkungan teknologi

- *Able to develop and implement embedded system*
- *Able to maintain the system according to law, relagution and standards*
- *Able to ensure the protection of privacy and integrity in order to guide all IS practices*
- *Able to monitor technology environment*

General Skills :

- Menganalisis dan mendokumentasikan aktivitas domain
- Memonitor teknologi yang baru muncul untuk memahami potensi dukungannya pada domain
- Menentukan dan mendokumentasikan kebutuhan sistem
- Mengelola proses pengembangan berbasis rencana, hibrida dan agile

- *Able to document the domain activity*
- *Able to monitor the new technologies to understand the supporting potential for the domain*
- *Able to determine and document the system requirement*
- *Able to manage development process based on planning, hybrid, and agile*

Knowledge :

- Mengetahui siklus hidup pengembangan sistem
- Menangkap dan menstrukturisasi data dan informasi dengan teknik pemodelan konseptual yang tepat

- *Having knowledge of system development lifecycle*
- *Having knowledge of gathering and constructing information and data using conceptual model techniques*

MASTER OF INFORMATION SYSTEMS CURRICULUM SYLLABUS 2018			
	Course **Topics in Embedded System**		
	Code: IS185915	CREDIT: 3	Semester: 2/3
Release: 00			

Attitude :

- Menjunjung tinggi nilai kemanusiaan dalam menjalankan tugas berdasarkan agama, moral, dan etika;
- Taat hukum dan disiplin dalam kehidupan bermasyarakat dan bernegara;
- Menunjukkan Attitude bertanggungjawab atas pekerjaan di bidang keahliannya secara mandiri

- *Uphold the value of humanity in carrying out duties based on religion, morals, and ethics;*
- *Obey the law and discipline in social life and state;*
- *Demonstrate responsible attitude to work in the field of his expertise independently*

Specific Learning Outcome

Cognitive :

- Menganalisis tujuan bisnis dan proses yang ada
- Menganalisis pengguna dan mengidentifikasi kelas pengguna perangkat lunak
- Menyeleksi user champion kelas user
- Menganalisis kebutuhan user dan menyimpulkan menjadi kebutuhan fungsional
- Mampu menganalisis kebutuhan sistem menjadi desain system.
- Mampu mengimplementasikan desain sistem kedalam Code program
- Mampu mengelola rilis perangkat tertanam

- *Able to analyze the goal of the business and its process*
- *Able to analyze the user and identify the user class in a software*
- *Able to determine the champion user in the user class*
- *Able to analyze the user requirement and summary it into functional requirement*
- *Able to analyze the system requirement into system design*
- *Able to implement the system design to program code*
- *Able to manage the embedded system release*

Psychomotor :

- Membuat dokumentasi kebutuhan perangkat tertanam
- Menunjukkan hasil analisis kebutuhan pengguna sampai menjadi kebutuhan fungsional dan dokumentasinya

	Course		
	Topics in Embedded System		
	Code: IS185915	CREDIT: 3	Semester: 2/3

Release: 00

- Mengusulkan dan membuat dokumentasi terkait topik terbaru mengenai perkembangan manajemen kebutuhan perangkat tertanam, pembangunan dan desain perangkat tertanam dan implementasi perangkat tertanam

- *Able to document embedded system requirements*
- *Able to present the result of user requirement process until it becomes the functional requirement with its documentations*
- *Able to propose and produce the documentation of embedded system requirement and management, embedded system design and development, also the implementation of the embedded system*

Affective :

- Mahasiswa mampu & mau berprilaku jujur
- Mahasiswa mampu & mau berprilaku komunikatif
- Mahasiswa mampu & mau tunduk pada peraturan & perundangan yang berlaku
- Mahasiswa mampu & mau berprilaku bertanggung jawab

- *Able and willing to act honestly*
- *Able and willing to behave communicately*
- *Able and willing to obey the prevailing laws and regulations*
- *Able and willing to behave responsibly*

Course Subjects

1. Konsep dasar dan desain dari sistem tertanam
2. Desain dan pengembangan sistem tertanam berperforma rendah
3. Desain dan pengembangan sistem tertanam berperforma tinggi
4. Topik penelitian dalam sistem tertanam

1. *Basic concept and design of embedded system*
2. *Design and development low performance embedded system*
3. *Design and development high performance embedded system*
4. *Research topics in embedded system*

MASTER OF INFORMATION SYSTEMS CURRICULUM SYLLABUS 2018			
	Course **Topics in Embedded System**		
	Code: IS185915	CREDIT: 3	Semester: 2/3
Release: 00			

Main References

1. Wayne Wolf, “Computers as Components-principles of Embedded Computer system Design”, 1st edition, Elseveir, 2009.
2. Labrosse, “Embedding system building blocks”, 2rd edition, CMP Publishers, 2007.
3. Kenneth J. Ayala and Thomson, “The 8051 Microcontroller”, 3rd edition, Thompson Delmar, Learning, 2008.
4. Frank Vahid, Tony Givargis and John Wiley, “Embedded System Design, Microcontrollers”, 3rd edition, Pearson Education, 2008.

Additional References

1. Michael J. Pont, “Embedded C”, Addison Wesley, 2002.

SILABUS KURIKULUM 2018 PROGRAM MAGISTER (S2) SISTEM INFORMASI			
	Course **Seminar / Thesis Proposal**		
	Code: IS185301	CREDIT: 2	Semester: 3
Release: 00			

Course Description

Mata kuliah Seminar / Proposal Tesis akan memberikan pengetahuan atau pengalaman kepada mahasiswa untuk mampu membuat sebuah proposal Tesis dan mempublikasikannya kedalam sebuah seminar atau jurnal. Karya ilmiah yang dihasilkan terutama merupakan hasil dari kajian teori dan kajian penelitian terdahulu dan dapat dipadukan dengan persoalan penelitian yang terkini. Mata kuliah ini akan memberikan dasar yang sangat kuat kepada mahasiswa untuk mampu menyelesaikan penelitian Tesis.

The Seminar / Thesis Proposal Course will provide knowledge or experience to students to be able to produce a thesis proposal and publish it into a seminar or journal. The resulting scientific work is primarily the result of structured literature review on the state-of-the-art of the students research topic and be integrated with current research issues. This course will provide a very strong foundation for students to be able to complete the Thesis research

Expected Learning Outcome

- Mampu membuat sebuah kajian literatur, dan membuat sebuah proposal penelitian serta mempublikasikannya kedalam sebuah seminar atau jurnal ilmiah.
- Mampu menjelaskan dan mengimplementasikan metode penelitian yang tepat termasuk di dalamnya metode kuantitatif, kualitatif, penelitian tindakan, pemodelan, dan analisis statistik untuk berbagai penelitian Sistem Informasi seperti difusi, pengembangan dan pemanfaatan teknologi informasi, informasi, dan manajemen.
- Mampu mengimplementasikan metode yang tepat untuk penelitian dan penulisan ilmiah dalam bentuk proposal penelitian, laporan tesis dan publikasi ilmiah.

- *Able to conduct literature review and to write a research proposal and publish in a seminar or academic journal.*
- *Describes and applies the right type of information systems research method including quantitative, qualitative, action research, modelling, statistical analysis in different research such as diffusion, development and use of information technology as well as the use of information and management.*
- *Applies the right method to conduct research and write scientific works in the form of research proposal, thesis and scientific publication.*

SILABUS KURIKULUM 2018 PROGRAM MAGISTER (S2) SISTEM INFORMASI			
	Course **Seminar / Thesis Proposal**		
	Code: IS185301	CREDIT: 2	Semester: 3
Release: 00			

Course Learning Outcome

Specific Skills : Mampu merancang, melakukan, menuliskan, dan mempublikasikan sebuah kajian literatur, merancang proposal penelitian dan mempublikasikannya.

Able to design, perform, write, and publish a literature review, as well as design and publish a research proposal.

General Skills : Mampu melakukan kajian literatur dan membuat proposal penelitian

Able to conduct a literature review and write scientific paper.

Knowledge : Memiliki pengetahuan untuk merumuskan persoalan di masyarakat melalui penelitian

Have knowledge to formulate problems in the community through research

Attitude :

- Menjunjung tinggi nilai kemanusiaan dalam menjalankan tugas berdasarkan agama, moral, dan etika;
- Anti plagiasi
- Taat hukum dan disiplin dalam kehidupan bermasyarakat dan bernegara;
- Menunjukkan sikap bertanggungjawab atas pekerjaan di bidang keahliannya secara mandiri

- *Uphold the value of humanity in conducting research based on religion, morals, and ethics;*
- *Anti plagiarism*
- *Obey the law and discipline in social life and state;*
- *Shows responsibility and independence for the work in the field of his expertise;*

Specific Learning Outcome

SILABUS KURIKULUM 2018 PROGRAM MAGISTER (S2) SISTEM INFORMASI			
	Course **Seminar / Thesis Proposal**		
	Code: IS185301	CREDIT: 2	Semester: 3

Release: 00

Cognitive :
- Mahasiswa mampu melihat persoalan di masyarakat, merumuskannya kedalam sebuah penelitian, merancang metode penelitian, melaksanakan penelitian, dan menuliskannya ke dalam sebuah karya ilmiah.
- *Students are able to make literature reviews, identify problems in the community, formulate them into a research plan, and publish them.*

Psychomotor :
- Mahasiswa mampu mempresentasikan ide atau proposal penelitian
- Mahasiswa mampu mengorganisasikan rencana penelitian baik secara individu ataupun dengan kelompok
- *Students are able to present research ideas or proposals*
- *Students are able to organize research plans either individually or in groups*

Affective :
- Mahasiswa mampu & mau berprilaku jujur, termasuk anti plagiasi
- Mahasiswa mampu & mau berprilaku sesuai etika akademi
- Mahasiswa mampu & mau mematuhi hukum & peraturan yang berlaku
- Mahasiswa mampu & mau berprilaku bertanggung jawab
- *Able & willing to behave honestly and against plagiarism.*
- *Able & willing to behave according to academic ethics.*
- *Able & willing to comply with applicable laws & regulations.*
- *Able & willing to behave responsibly.*

Course Subjects

Membuat proposal tesis dan Ujian/seminar Tesis

Write a thesis proposal and present in thesis Exam / seminar

Main References

Baku Mutu Pascasarjana ITS, 2020

ITS Graduate Study Quality Assurance Guidance, 2020

SILABUS KURIKULUM 2018 PROGRAM MAGISTER (S2) SISTEM INFORMASI			
	Course **Seminar / Thesis Proposal**		
	Code: IS185301	CREDIT: 2	Semester: 3
Release: 00			
Additional References			

SILABUS KURIKULUM 2018 PROGRAM MAGISTER (S2) SISTEM INFORMASI

Course

Seminar / Thesis Proposal

Code: IS185301	CREDIT: 2	Semester: 3

Release: 00

Course Description

Mata kuliah Tesis merupakan tugas akhir mahasiswa magister dalam bentuk karya ilmiah. Mata kuliah ini memberikan keahlian dan pengalaman kepada mahasiswa untuk melakukan serangkaian aktivitas penelitian menurut kaidah akademik yang baik, orisinal dan bebas plagiasi. Karya Tesis harus dipublikasikan ke dalam sebuah seminar ilmiah atau ke Jurnal-jurnal penelitian.

Thesis course is the final task of magister students in the form of scientific work. This course provides students with expertise and experience to conduct a series of research activities according to good academic principles, which is original and free from plagiarism. Thesis works should be published into a scientific seminar or into research journals.

Expected Learning Outcome

- Mampu menjelaskan dan mengimplementasikan metode penelitian yang tepat termasuk di dalamnya metode kuantitatif, kualitatif, penelitian tindakan, pemodelan, dan analisis statistik untuk berbagai penelitian Sistem Informasi seperti difusi, pengembangan dan pemanfaatan teknologi informasi, informasi, dan manajemen.
- Mampu mengimplementasikan metode yang tepat untuk penelitian dan penulisan ilmiah dalam bentuk proposal penelitian, laporan tesis dan publikasi ilmiah.

- *Describes and applies the right type of information systems research method including quantitative, qualitative, action research, modelling, statistical analysis in different research such as diffusion, development and use of information technology as well as the use of information and management.*
- *Applies the right method to conduct research and write scientific works in the form of research proposal, thesis and scientific publication.*

Course Learning Outcome

Specific Skills : Mampu merancang, melakukan, menuliskan, dan mempublikasikan sebuah penelitian ilmiah.

Able to design, perform, write, and publish a scientific research

General Skills :
- Mampu melakukan penelitian dan menuliskannya dalam sebuah laporan
- Mampu menuliskan hasil penelitian menjadi laporan dan paper ilmiah.

	Course	
	Seminar / Thesis Proposal	
Code: IS185301	CREDIT: 2	Semester: 3

Release: 00

- *Able to do research and write it in a report*
- *Able to write the results of research into scientific reports and papers*

Knowledge : Memiliki pengetahuan untuk merumuskan persoalan di masyarakat melalui penelitian

Have knowledge to formulate problems in the community through research

Attitude :
- Menjunjung tinggi nilai kemanusiaan dalam menjalankan tugas berdasarkan agama, moral, dan etika;
- Anti plagiasi
- Taat hukum dan disiplin dalam kehidupan bermasyarakat dan bernegara;
- Menunjukkan sikap bertanggungjawab atas pekerjaan di bidang keahliannya secara mandiri

- *Uphold the value of humanity in conducting research based on religion, morals, and ethics;*
- *Anti plagiarism*
- *Obey the law and discipline in social life and state;*
- *Shows responsibility and independence for the work in the field of his expertise;*

Course Learning Outcome

Cognitive : Mahasiswa mampu melihat persoalan di masyarakat, merumuskannya ke dalam sebuah penelitian, merancang metode penelitian, melaksanakan penelitian, dan menuliskannya ke dalam sebuah karya ilmiah.

Students are able to see problems in society, formulate them into research, design research methods, carry out research, and write them into scientific work.

Psychomotor :
- Mahasiswa mampu mempresentasikan ide atau proposal penelitian
- Mahasiswa mampu mengorganisasikan rencana penelitian baik secara individu ataupun dengan kelompok

	Course	
	Seminar / Thesis Proposal	
Code: IS185301	CREDIT: 2	Semester: 3

Release: 00

- *Students are able to present research ideas or proposals*
- *Students are able to organize research plans either individually or in groups*

Affective :

- Mahasiswa mampu & mau berprilaku jujur, termasuk anti plagiasi
- Mahasiswa mampu & mau berprilaku komunikatif
- Mahasiswa mampu & mau tunduk pada peraturan & perundangan yang berlaku
- Mahasiswa mampu & mau berprilaku bertanggung jawab

- *Able & willing to behave honestly and against plagiarism.*
- *Able & willing to behave communicatively*
- *Able & willing to comply with applicable laws & regulations*
- *Able & willing to behave responsibly*

Course Subjects

Melakukan penelitian, menulis Tesis, Ujian Akhir Tesis.

Conducting research, writing thesis, and defend it in final thesis examination

Main References

Baku Mutu Pascasarjana ITS, 2020

ITS Graduate Study Quality Assurance Guidance, 2020

Additional References