## **Undergraduate Informatics**

Total credits that must be taken to be a Bachelor of Informatics Engineering is 144 credits. Rules of the curriculum and course prerequisite is made in such a way to help students finish college on time or even below the target time (8 semesters).

There are six concentration in this field. There are:

Network and computer security, Multimedia and computer vision, Computing and intelligent systems, Information systems, Software engineering, and Medical Informatics

1 <sup>st</sup> Semester	2 <sup>nd</sup> Semester
Religion Education	Ibadah and Akhlak
State Phylosophy	Discrete Mathematics
English	Algorithms and Programming 2
Calculus	Computer Organization and Architectures
Logic and Mathematic	Operating Systems
Introduction to Information Technology	Lab. Work on Operating Systems
Algorithms and Programming 1	Database
Lab. Work on Algorithms and Programming 1	Lab. Work on Database
3 <sup>rd</sup> Semester	4 <sup>th</sup> Semester
Socialization	Islamic Leadership
Linear and Matrix Algebra	Statistics and Probability
Information Systems	Numerical Methods
Multimedia	Software Engineering
Object-Oriented Programming	Data Structures
Lab. Work on Object-Oriented Programming	Lab. Work on Data Structures
Computer Networks	Web Programming
Lab. Work on Computer Networks	Lab. Work on Web Programming

5 <sup>th</sup> Semester	6 <sup>th</sup> Semester
Islamic Thougth and Civilization	Civil Education
Enterpreneurships	Research Methodology
Operation Research	Data Mining
Computer Graphics	Information Technology Management
Automata and Language Theory	Elective Course
Artificial Intelligence	Elective Course
Human and Computer Interaction	Elective Course
7 <sup>th</sup> Semester	8 <sup>th</sup> Semester
Field Work	Professional Ethics
Community Service	Information Technology in Society
Elective Course	Final Assignment
Elective Course	
Elective Course	
Elective Course	

Network and Computer Security         Multimedia and Computer Vision           Distributed Systems         Computer - Aided Learning           Network Management         3D Computer Graphics           Wireless Networks and Mobile Systems         Game Development           Parallel Processing         Game Programming           Wide Area Networks         Computer Animation           Computer System Security         Image Processing Techniques           Ethical Hacking         Linear Transformations           Computer Forensics         Pattern Recognition Techniques           Cyber Law         Machine Learning           Computing and Intelligent System         Information Systems           Fuzzy Logics         Decision Support Systems           Evolutionary Computation         Geographical Information Systems           Artificial Neural Network         Information Systems Audit           Expert Systems         Database Management Systems           Robotics         Database Administration           Non-Procedural Programming         Database Technologies           Machine Learning         Web Services           Natural Language Processing         Network Management           Computer System Security         Enterprise Information Systems           Network Management         Computer Systems	Elective Course	
Network Management Wireless Networks and Mobile Systems Parallel Processing Game Development Game Programming Wide Area Networks Computer System Security Image Processing Techniques Linear Transformations Computer Forensics Pattern Recognition Techniques Machine Learning  Computing and Intelligent System Information Systems  Evolutionary Computation Artificial Neural Network Information Systems Robotics Non-Procedural Programming Agent Programming Machine Learning  Database Administration Non-Procedural Programming Web Services Natural Language Processing Network Management Software Engineering Medical Information Systems  Decision Support Systems Database Management Systems Database Process Management Computer Systems Network Management Medical Information Systems  Network Management Health Information Systems  Decision Support Systems  Medical Information Systems  Decision Support Systems  Medical Information Systems  Decision Support Systems  Medical Information Medical Imaging  Java Technologies Medical Imaging	Network and Computer Security	Multimedia and Computer Vision
Wireless Networks and Mobile Systems Parallel Processing Wide Area Networks Computer System Security Image Processing Techniques Linear Transformations Computer Forensics Pattern Recognition Techniques Computing and Intelligent System  Computing and Intelligent System  Fuzzy Logics Pocision Support Systems Evolutionary Computation Artificial Neural Network Information System Audit Expert Systems Robotics Database Administration Non-Procedural Programming Agent Programming Machine Learning Web Services Natural Language Processing  Software Engineering Component-Oriented Programming Object-Oriented Design Patterns Agile Software Development XML Technologies Java Technology Java Technology Java Technology Java Technology  Game Programming Game Programming Image Processing Technologies Information Image Programming Game Programming Agent Programming Agent Programming Web Services Network Management Computer System Security Enterprise Information Systems Decision Support Systems Agile Software Development Medical Imaging Java Technology	Distributed Systems	Computer -Aided Learning
Parallel Processing Wide Area Networks Computer System Security Image Processing Techniques Linear Transformations Computer Forensics Pattern Recognition Techniques Machine Learning  Computing and Intelligent System Fuzzy Logics Evolutionary Computation Artificial Neural Network Expert Systems Robotics Non-Procedural Programming Nachine Learning  Business Process Management Machine Learning Network Management Machine Learning Network Nanagement Software Engineering Component-Oriented Programming Object-Oriented Design Patterns Agile Software Development Telemedicine Medical Imaging Java Technology Java Technology  Medical Imaging Java Technology  Medical Imaging Java Technology  Medical Imaging Java Technology	Network Management	3D Computer Graphics
Wide Area Networks Computer System Security Ethical Hacking Linear Transformations Computer Forensics Pattern Recognition Techniques Machine Learning  Computing and Intelligent System Information System  Fuzzy Logics Evolutionary Computation Artificial Neural Network Expert Systems Robotics Non-Procedural Programming Agent Programming Machine Learning  Web Services Natural Language Processing  Software Engineering  Component-Oriented Programming Object-Oriented Design Patterns Agile Software Development  XML Technologies Java Technology  Information System Information Systems Geographical Information Systems Information Systems Database Management Systems Database Administration Database Technologies Business Process Management Web Services Network Management Computer System Security Enterprise Information Systems Decision Support Systems Decision Support Systems Telemedicine Medical Informatios Medical Imaging Java Technology	Wireless Networks and Mobile Systems	Game Development
Ethical Hacking Linear Transformations  Computer Forensics Pattern Recognition Techniques  Cyber Law Machine Learning  Computing and Intelligent System Information System  Fuzzy Logics Decision Support Systems  Evolutionary Computation Geographical Information Systems  Artificial Neural Network Information System Audit  Expert Systems Database Management Systems  Robotics Database Administration  Non-Procedural Programming Database Technologies  Agent Programming Business Process Management  Machine Learning Web Services  Natural Language Processing Network Management  Computer System Security  Enterprise Information Systems  Software Engineering Health Information Systems  Agile Software Development Telemedicine  XML Technologies Medical Imaging  Java Technology	Parallel Processing	Game Programming
Ethical Hacking Computer Forensics Pattern Recognition Techniques Cyber Law Machine Learning  Computing and Intelligent System Information System  Fuzzy Logics Evolutionary Computation Artificial Neural Network Expert Systems Robotics Non-Procedural Programming Agent Programming Machine Learning Machine Learning Web Services Natural Language Processing  Software Engineering Medical Information Medical Informatics  Component-Oriented Programming Agile Software Development XML Technologies Java Technology  Health Information Machine Learning Medical Imaging Medical Imaging Medical Imaging Medical Imaging Medical Imaging	Wide Area Networks	Computer Animation
Computer Forensics Cyber Law Machine Learning  Computing and Intelligent System Information System  Fuzzy Logics Evolutionary Computation Artificial Neural Network Expert Systems Robotics Non-Procedural Programming Agent Programming Machine Learning Natural Language Processing  Software Engineering  Component-Oriented Programming Agile Software Development Agile Software Development  XML Technologies  Machine Learning Medical Imaging	Computer System Security	Image Processing Techniques
Computing and Intelligent System  Fuzzy Logics  Evolutionary Computation  Artificial Neural Network  Expert Systems  Robotics  Non-Procedural Programming  Agent Programming  Machine Learning  Natural Language Processing  Software Engineering  Component-Oriented Programming  Object-Oriented Design Patterns  Agile Software Development  XML Technologies  Information Systems  Geographical Information Systems  Information Systems  Ageographical Information  Babase Management Systems  Database Administration  Database Technologies  Business Process Management  Web Services  Network Management  Computer System Security  Enterprise Information Systems  Decision Support Systems  Telemedicine  Medical Imaging  Java Technology	Ethical Hacking	Linear Transformations
Fuzzy Logics Decision Support Systems  Evolutionary Computation Geographical Information Systems  Artificial Neural Network Information System Audit  Expert Systems Database Management Systems  Robotics Database Administration  Non-Procedural Programming Database Technologies  Agent Programming Business Process Management  Machine Learning Web Services  Natural Language Processing Network Management  Computer System Security  Enterprise Information Systems  Software Engineering Health Informatics  Component-Oriented Programming  Object-Oriented Design Patterns  Agile Software Development  XML Technologies  Java Technology  Medical Imaging  Java Technology	Computer Forensics	Pattern Recognition Techniques
Fuzzy Logics  Evolutionary Computation  Artificial Neural Network  Expert Systems  Robotics  Non-Procedural Programming  Agent Programming  Machine Learning  Natural Language Processing  Software Engineering  Component-Oriented Programming  Object-Oriented Design Patterns  Agile Software Development  XML Technologies  Evolutionary Computation Systems  Decision Support Systems  Information Systems  Database Management Systems  Database Technologies  Business Process Management  Web Services  Network Management  Computer System Security  Enterprise Information Systems  Decision Support Systems  Telemedicine  Medical Imaging  Java Technology	Cyber Law	Machine Learning
Evolutionary Computation Artificial Neural Network Information System Audit Expert Systems Database Management Systems  Robotics Database Administration Database Technologies Agent Programming Business Process Management Machine Learning Web Services Natural Language Processing Network Management Computer System Security Enterprise Information Systems  Software Engineering Medical Informatics  Component-Oriented Programming Object-Oriented Design Patterns Agile Software Development  XML Technologies Java Technology  Information Systems  Database Administration Database Admini	Computing and Intelligent System	Information System
Artificial Neural Network  Expert Systems  Robotics  Database Administration  Non-Procedural Programming  Agent Programming  Machine Learning  Natural Language Processing  Network Management  Computer System Security  Enterprise Information Systems  Software Engineering  Medical Informatics  Component-Oriented Programming  Object-Oriented Design Patterns  Agile Software Development  XML Technologies  Java Technology  Information Systems  Database Administration  Data	Fuzzy Logics	Decision Support Systems
Expert Systems  Robotics  Database Administration  Database Technologies  Agent Programming  Agent Programming  Machine Learning  Natural Language Processing  Network Management  Computer System Security  Enterprise Information Systems  Software Engineering  Medical Informatics  Component-Oriented Programming  Object-Oriented Design Patterns  Agile Software Development  XML Technologies  Java Technology  Database Management Systems  Database Management Systems  Business Process Management  Computer Systems Security  Enterprise Information Systems  Telemedicine  Medical Imaging	Evolutionary Computation	Geographical Information Systems
Robotics Database Administration Non-Procedural Programming Database Technologies Business Process Management Web Services Natural Language Processing Network Management Computer System Security Enterprise Information Systems  Software Engineering Health Information Systems Object-Oriented Programming Object-Oriented Design Patterns Agile Software Development Telemedicine  XML Technologies Java Technology	Artificial Neural Network	Information System Audit
Non-Procedural Programming  Agent Programming  Business Process Management  Web Services  Natural Language Processing  Network Management  Computer System Security  Enterprise Information Systems  Software Engineering  Medical Informatics  Component-Oriented Programming  Object-Oriented Design Patterns  Agile Software Development  XML Technologies  Java Technology  Database Technologies  Business Process Management  Web Services  Medwork Management  Computer System Security  Enterprise Information Systems  Decision Support Systems  Telemedicine  Medical Imaging	Expert Systems	Database Management Systems
Agent Programming  Machine Learning  Natural Language Processing  Network Management  Computer System Security  Enterprise Information Systems  Software Engineering  Medical Informatics  Component-Oriented Programming  Object-Oriented Design Patterns  Agile Software Development  XML Technologies  Java Technology  Business Process Management  Web Services  Network Management  Enterprise Information Systems  Decision Support Systems  Telemedicine  Medical Imaging	Robotics	Database Administration
Machine Learning  Natural Language Processing  Network Management  Computer System Security  Enterprise Information Systems  Software Engineering  Medical Informatics  Component-Oriented Programming  Health Information Systems  Object-Oriented Design Patterns  Agile Software Development  XML Technologies  Java Technology  Web Services  Network Management  Computer System Security  Enterprise Information Systems  Pecision Support Systems  Telemedicine  Medical Imaging	Non-Procedural Programming	Database Technologies
Natural Language Processing  Network Management Computer System Security Enterprise Information Systems  Software Engineering Medical Informatics  Component-Oriented Programming Health Information Systems Object-Oriented Design Patterns Decision Support Systems Agile Software Development Telemedicine  XML Technologies Medical Imaging  Java Technology	Agent Programming	Business Process Management
Computer System Security Enterprise Information Systems  Software Engineering Medical Informatics  Component-Oriented Programming Health Information Systems Object-Oriented Design Patterns Decision Support Systems Agile Software Development Telemedicine  XML Technologies Medical Imaging  Java Technology	Machine Learning	Web Services
Software Engineering Medical Informatics  Component-Oriented Programming Health Information Systems Object-Oriented Design Patterns Decision Support Systems Agile Software Development Telemedicine  XML Technologies Medical Imaging  Java Technology	Natural Language Processing	Network Management
Software Engineering  Medical Informatics  Component-Oriented Programming  Health Information Systems  Object-Oriented Design Patterns  Decision Support Systems  Telemedicine  XML Technologies  Medical Imaging  Java Technology		Computer System Security
Component-Oriented Programming  Health Information Systems  Object-Oriented Design Patterns  Decision Support Systems  Telemedicine  XML Technologies  Medical Imaging  Java Technology		Enterprise Information Systems
Object-Oriented Design Patterns  Agile Software Development  XML Technologies  Java Technology  Decision Support Systems  Telemedicine  Medical Imaging	Software Engineering	Medical Informatics
Agile Software Development  XML Technologies  Java Technology  Telemedicine  Medical Imaging	Component-Oriented Programming	Health Information Systems
XML Technologies Medical Imaging  Java Technology	Object-Oriented Design Patterns	Decision Support Systems
Java Technology	Agile Software Development	Telemedicine
	XML Technologies	Medical Imaging
Web Services	Java Technology	
	Web Services	

Semantic Web	
Web Engineering	