Introduction to Information Technology

Module Name :	Introduction to Information Technology	
Module Level :	Undergraduate	
Code :	32252012	
Sub-heading, if applicable :		
Classes, if applicable :		
Semester :	1st	
Module coordinator :	Dewi Muliyati, S.Pd., M.Si, M.Sc	
Lecturer(s) :	Dr. rer.nat Bambang Heru Iswanto, M.Si. Dewi Muliyati, S.Pd., M.Si, M.Sc	
Language :	Indonesian	
Classification within the curriculum :	Compulsory course	
Type of Teaching	Contact hours per week during the semester	Class Size
Lecture (Expository, discussion, exercise)	100 minutes	40
Workload	Total workload of this course 90,6 hours (3 ECTS) per semester which consist of 26,67 hours (0,89 ECTS) classroom activity, 32 hours (1.06 ECTS) structured task, and 32 hours (1.06 ECTS) per semester.	
Credit points :	3 ECTS	
Prerequisite course(s) :	-	
Course Outcomes :	After taking this course the student have ability to : CLO66. Students are expected to be able to operate computer systems with various operating systems CLO67. Students are expected to recognize various information technology devices and their functions CLO68. Students are expected to be able to use it practically for simple work.	
Content :	1. Information Technology Development 1.1 Information Technology 1.2 Computer History 1.3 Information Technology Trends 2. Computer System Fundamentals 2.1 Von Neumann Computer Architecture 2.2 Data Representation, Character Format, and Number Format (Integer and Real) 2.3 CPU & ALU 2.4 Instructions in Assembly Language 2.5 Computer Hardware 2.6 Computer Memory 2.7 Input and Output 3. Operating Systems	

	3.1 Operating System (OS) Development 3.2 Embedded Systems 3.3 Input and Output Management 3.4 Basic Operating System Operations 3.5 Memory Management 3.6 Virtual Memory 3.7 OS Process Monitoring 3.8 File Management 3.9 Operating Systems: DOS, Windows, Unix, and Linux 3.10 System Utility Applications 4. Telecommunications & Networking 4.1 Computer Networks and Client-Server Model 4.2 Computer Network Hardware and Software 4.3 OSI and TCP/IP 4.4 Network Protocols and Layers 4.5 Network Process Monitoring Applications 4.6 Internet of Things (IoT) 4.7 Internet Concepts 4.8 Internet Applications 4.9 WWW, HTTP, and HTML 4.10 Web Analytics 4.11 Simple Website with CMS 5. Multimedia Technology 5.1 Multimedia Development 5.2 Software for Productivity and Creativity 5.3 Document Processing Applications 5.4 Digital Images 5.5 Graphics Processing Applications 5.6 Illustration Graphics 6. Artificial Intelligence 6.1 Artificial Intelligence (AI) Development 6.2 Statistical Theory for Decision Making 6.3 Machine Learning 6.4 Information Theory 6.5 Control in Robotics 6.6 Sound and Image Recognition with AI Approach 7. Big Data & Information Systems 7.1 Big Data 7.2 Types of Big Data 7.3 Big Data Technologies 7.4 Data Analysis Methods 7.5 Data Clustering

<table>
<tr><td></td><td>7.6 Data Visualization
7.7 Predictions from Big Data Analysis
7.8 Regression Modeling
7.9 Big Data Separation

Cybersecurity and Ethics
8.1 Cybercrime
8.2 Ethical Theories and Computer Security Concepts
8.3 Privacy and Encryption
8.4 Viruses, Hackers, and Computer System Maintenance
8.5 Information and Electronic Transactions Law (ITE Law)</td></tr>
<tr><td>Study/exam achievements:</td><td>Examination are conducted as unit test, as following
<table>
<tr><th>No</th><th>Assesment Object</th><th>Assesment Technique</th><th>Weight</th></tr>
<tr><td>1</td><td>Case-based Assignment</td><td>Exploring and discussing some problem in mathematics</td><td>50%</td></tr>
<tr><td>2</td><td>Assignment</td><td>Portofolio</td><td>20%</td></tr>
<tr><td>3</td><td>Midterm Test</td><td>Written test</td><td>10%</td></tr>
<tr><td>4</td><td>Final Test</td><td>Written test</td><td>10%</td></tr>
<tr><td>5</td><td>Attendance</td><td>Presence list</td><td>10%</td></tr>
</table></td></tr>
<tr><td>Media :</td><td>Power point presentation, textbook, learning management system (LMS)</td></tr>
<tr><td>Literatures :</td><td>1. Carl Reynolds and Paul Tymann, Principles of Computer Science, Schaum’s Outline Series. Mcgraw-Hill, 2008.
2. J. Glenn Brookshear and Dennis Brylow, Computer Science: An Overview, 12th Ed., Pearson, 2015.
3. Brian K. Williams and Stacey C. Sawyer. 2010. Using Information Technology: A Practical Introduction to Computers & Communications. McGraw-Hill.
4. Fernando Lafrate, Artificial Intelligence and Big Data, ISTE Ltd, 2018
5. Judith Hurwitz et al, Big Data For Dummies, John Wiley & Sons, 2013
6. George M. Marakas and James A. O’brien, Introduction To Information Systems 16 Ed., McGraw-Hill, 2013
7. Stephen L. Nelson, Excel 2007 Data Analysis For Dummies, Wiley Publishing, 2007.
8. Li, Z. N., Drew, M. S., & Liu, J. (2021). Introduction to multimedia. In Fundamentals of Multimedia (pp. 3-26). Springer, Cham.
9. Park, N., & Lee, D. (2018). Electronic identity information hiding methods using a secret sharing scheme in multimedia-centric internet of things</td></tr>
</table>

	environment. Personal and Ubiquitous Computing, 22(1), 3-10. 10. Ambarwulan, D., & Muliyati, D. (2016). The Design of Augmented Reality Application as Learning Media Marker-Based for Android Smartphone. Jurnal Penelitian & Pengembangan Pendidikan Fisika, 2(1), 73-80. 11. Muliyati, D., Wahdaniyah, N., & Bakri, F. (2021, October). Development of Educational Adventure Game on Fluid Physics Material. In Journal of Physics: Conference Series (Vol. 2019, No. 1, p. 012062). IOP Publishing. 12. E Handoko, 2021, Penerapan Aplikasi HEALTH NOTIFICATION Terhadap Covid-19 Berbasis Android Bagi Masyarakat Di Wilayah Jakarta. 13. M Delina, 2020, Pengembangan Website Dalam Pembelajaran Fisika Di Kelas Untuk Guru Fisika Di SMA Dwiwarna Kabupaten Bogor Provinsi Jawa Barat. 14. T B Prayitno, 2022, Pembelajaran Aplikasi Microsoft Excel dalam Fisika untuk Pelajar SMA di Kelurahan Ciracas Jakarta Timur. 15. H Nasbey, 2021, Pelatihan Pembuatan Aplikasi Android Sebagai Media Pembelajaran IPA Berbasis Problem-Based Learning.