

Module Handbook

Module Name:	Electronics
Module Level:	Bachelor
Abbreviation, if applicable:	FI2103
Sub-heading, if applicable:	
Courses included in the module, if applicable:	
Semester/term:	3/ Second Years
Module coordinator(s):	
Lecturer(s):	
Language:	Bahasa Indonesia
Classification within the curriculum:	General Studies / Major Subject / Elective Studies
Teaching format / class hours per week during the semester:	4 hours lectures
Workload:	4 hours lectures, 8 hours individual study and Laboratories work, 16 weeks per semester, and total 192 hours a semester
Credit Points:	2
Requirements:	Elementary Physics II
Learning goals/competencies:	<p>Knowledge:</p> <ul style="list-style-type: none"> – Ability to explain and describe atom theory, band energy, intrinsic and extrinsic semiconductor, p and n-type semiconductor – Ability to explain and describe junction diode theory, diode load line, half and full wave rectification, capacitor filtering, voltage doubler, diode clipper, and voltage regulator – Ability to describe the assess of bipolar junction transistor (BJT) amplifier circuits (common emitter, common collector and common base) – Ability to describe the assess of field effect transistor (FET, JFET, MOSFET) amplifier circuits (common gate, common souches and common drain) – Ability to describe the operational amplifier (op-amp) circuit, inverting, non-inverting, summing, voltage follower and differential amplifier circuits – Ability to describ the basic of digital electronics and carnough map <p>Skill</p> <ul style="list-style-type: none"> – Ability to analyze, calculate and compute Thevenin and Norton Equivalen Circuit – Ability to compute, calculate, analyze, design, assess of bipolar junction transistor (BJT) amplifier circuits (common emitter, common collector and common base) – Ability to compute, calculate, analyze, design, assess of field effect transistor (FET, JFET, MOSFET) amplifier circuits (common gate, common souches and common drain) – Ability to calculate, analyze and design filter circuits (low pass filter, high pass filter, bandpass filter), bode plot of amplitude and phase response – Ability to analyze and design power efficiency of amplifier circuit, power amplifier, class A, B and AB power amplifier, push pull power amplifier circuits – Ability to compute, calculate, analyze, and design of operational amplifier (op-amp) circuit, inverting, non-inverting, summing, voltage follower and differential amplifier circuits

	<ul style="list-style-type: none"> - Ability to analyze and design of basic digital electronics and carnough map - <p>Competence:</p> <ul style="list-style-type: none"> -
Content:	<i>Semiconductor materials and pn-junction, semiconductor diodes, bipolar transistor(bipolar junction transistor), unipolar transistor (field effect transistor), BJT and FET biasing, power amplifier, filter circuit, operational amplifier, comparator, digital electronics</i>
Study/exam achievements:	Students are considered to be competent and pass if at least get 50% of examinations (mid-term test, final test, quizzes), homework, Research based learning.
Forms of Media:	Slides and LCD projectors, blackboards, lab.
Literature:	<p><i>[Malvino, A.; David J Bates, Electronic Principles, McGraw-Hill, 2007] ([Pustaka utama])</i></p> <p><i>[Dennis L. Eggleston, Basic Electronics for Scientists and engineers, Cambridge University Press, 2011]</i></p> <p><i>[Fundamental of Analog Circuits, Second Ed., Prentice Hall] ([Pustakapendukung])</i></p> <p><i>[Storey, N., Electronics; A System Approach, Addison Wesley, 1992]</i></p> <p><i>([Pustakaalternatif])</i></p>
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