



UNIVERSITAS NEGERI YOGYAKARTA
FACULTY OF MATHEMATICS AND NATURAL SCIENCES
DEPARTMENT OF PHYSICS EDUCATION
PHYSICS STUDY PROGRAM

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Bachelor of Physics

MODULE HANDBOOK

Module name:	Electronic Amplifier and Filter
Module level, if applicable:	Bachelor (Undegraduate) Programm
Code:	FSK6342
Sub-heading, if applicable:	-
Classes, if applicable:	-
Semester:	6 th
Module coordinator:	Sumarna, M.Si., M.Eng.
Lecturer(s):	Sumarna, M.Si., M.Eng.
Language:	Bahasa Indonesia
Classification within the curriculum:	Elective Course
Teaching format / class hours per week during the semester:	100 minutes lectures, 100 minutes laboratory activities, and 120 minutes structured activities per week.
Workload:	Total workload is 117 hours per semester which consists of 100 minutes lectures, 100 minutes laboratory activities, 120 minutes structured activities, and 120 minutes individual study per week for 16 weeks.
Credit points:	3 SKS (4.86 ECTS)
Prerequisites course(s):	-
Course Outcomes	After taking this course the students have ability to: CO1. Mahasiswa dapat memahami konsep dasar (cara kerja) berbagai macam penguat isyarat. CO2. Mahasiswa dapat mengenali berbagai jenis (klasifikasi) penguat. CO3. Mahasiswa dapat menganalisis parameter-parameter penguat. CO4. Mahasiswa dapat merancang penguat sesuai dengan parameter yang ditentukan.

	<p>CO5. Mahasiswa dapat memahami konsep dasar berbagai jenis filter.</p> <p>CO6. Mahasiswa dapat menganalisis parameter-parameter filter.</p> <p>CO7. Mahasiswa dapat merancang filter sesuai dengan parameter yang ditentukan.</p> <p>CO8. Mahasiswa mengetahui perkembangan rangkaian penguat dan filter dalam konteks ilmu pengetahuan dan teknologi.</p>																			
Content:	<p>Mata kuliah ini membahas tentang berbagai macam penguat isyarat yang mencakup penguat dengan transistor (BJT maupun UJT), dan penguat dengan OP-Amp. Penguat tersebut meliputi Penguat Isyarat dengan transistor, Penguat Diferensial, Penguat Inverting dan Non Inverting, Penguat Jumlah, Penguat Instrumentasi, Penguat Logaritmis dan Anti-logaritmis, serta Aplikasi Penguat. Selain itu juga membahas tentang berbagai jenis, orde, pendekatan, konfigurasi/topologi, dan aplikasi filter analog.</p>																			
Study / exam achievements:	<p>The final mark will be weight as follow:</p> <table border="1"> <thead> <tr> <th>No</th> <th>CO</th> <th>Assessment Object</th> <th>Assessment Technique</th> <th>Weight</th> </tr> </thead> <tbody> <tr> <td rowspan="3">1</td> <td rowspan="3">CO1, CO2, CO3, CO4, CO5, CO6, CO7, and CO8</td> <td>a. Individual Laboratory activities and report</td> <td rowspan="3">Report and written test</td> <td>30%</td> </tr> <tr> <td>b. Mid</td> <td>30%</td> </tr> <tr> <td>c. Final Exam</td> <td>40%</td> </tr> <tr> <td colspan="4" style="text-align: right;">Total</td> <td>100%</td> </tr> </tbody> </table>	No	CO	Assessment Object	Assessment Technique	Weight	1	CO1, CO2, CO3, CO4, CO5, CO6, CO7, and CO8	a. Individual Laboratory activities and report	Report and written test	30%	b. Mid	30%	c. Final Exam	40%	Total				100%
No	CO	Assessment Object	Assessment Technique	Weight																
1	CO1, CO2, CO3, CO4, CO5, CO6, CO7, and CO8	a. Individual Laboratory activities and report	Report and written test	30%																
		b. Mid		30%																
		c. Final Exam		40%																
Total				100%																
Forms of media:	Whiteboard, LCD Projector, Laptop/Computer																			
Literature:	<p>A. Boylestad, R., Nashelsky, L., 1992, Electronic Devices & Circuit Theory, Fifth Edition, Prentice Hall, Inc., Englewood Cliffs, New Jersey.</p> <p>B. Franco, S., 1998, Design With Operational Amplifiers and Analog Integrated Circuits, Second Edition, McGraw Hill, Boston.</p> <p>C. Clayton, J., Winder, S., 2003, Operational Amplifiers, Fifth Edition, Elsevier Ltd., Kidlington, England.</p> <p>D. Les Thede, 2004, Practical Analog and Digital Filter Design, Artech House, Inc., New York.</p>																			

	<p>E. Waters, A., 1991, Active Filter Design, Macmillan Education Ltd., London.</p> <p>F. Johnson, D. E., Johnson, J. R., Moore, H. P., 1980, A Handbook of Active Filters, Prentice Hall, Inc., Englewood Cliffs, New Jersey.</p> <p>G. Van Valkenberg, M. E., 1982, Analog Filter Design, Hpt Rinehart and Winston, New York.</p> <p>H. Winder, S., 2002, Analog and Digital Filter Design, Second Edition, Elsevier Science, New York.</p>
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PLO and CO mapping

	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8
CO1				✓	✓	✓	✓	
CO2				✓	✓	✓	✓	
CO3				✓	✓	✓	✓	
CO4				✓	✓	✓	✓	
CO5				✓	✓	✓	✓	
CO6				✓	✓	✓	✓	
CO7				✓	✓	✓	✓	
CO8				✓	✓	✓	✓	