

UNIVERSITAS NEGERI YOGYAKARTA FACULTY OF MATHEMATICS AND SCIENCE DEPARTMENT OF BIOLOGY EDUCATION Colombo 1 Street, Yogyakarta - 55281 Phone: (+62 274) 565411 Ext. 217, (+62 274) 565411 (Administration Office), Fax (+62 274)548203 Website: fmipa.uny.ac.id; E-mail: humas_fmipa@uny.ac.id

Bachelor of Science in Biology

MODULE HANDBOOK

Module name:	Microtechniques
Module level, if applicable:	Undergraduate
Code:	BIM6124
Sub-heading, if applicable:	-
Classes, if applicable:	-
Semester:	Odd
Module coordinator:	Ciptono, M.Si.
Lecturer(s):	Ratnawati, M.Sc., Tri Harjana, M.P., Budiwati, M.Si.
Language:	Bahasa Indonesia
Classification within the curriculum:	Compulsory Course
Teaching format / class hours	50 minutes lectures, 60 minutes structured activities, and 60
per week during the semester:	minutes individual study per week
Workload:	Total workload is 45.3 hours per semester which consists of 50 minutes lectures, 60 minutes structured activities, and 60 minutes individual study per week for 16 weeks.
Credit points:	1 SKS (1.64 ECTS)
Prerequisites course(s):	General Biology
Program Learning Outcomes:	 PLO 04. Comprehensively mastering Biology (core biology) to solve problems in the field of Biology (problem-solving) and to underlie the concepts of related sciences PLO 06. Being adaptive, creative, innovative in applying the concepts of Biology and other related fields PLO 09. Being able to work and create jobs/being an entrepreneur in the field of Biology PLO 11. Possessing scientific skills to support the ability to speak in local, national, and international forums
Course Outcomes	 After taking this course, the students have ability to: CO 01. Identify the general preparation for microtechnics, work procedures by recognizing the tools to be used. CO 02. Explain the basics of microtechnical preparation and technical preparation activities. CO 03. Elaborate the technique and preparation for cutting prospective preparations using a microtome. CO 04. Identify the microscopic results of microscopic observations, conditions and tools used. CO 05. Explain how to make leaf cuticle and bioresin preparations. CO 06. Explain the procedure for making leaf cuticle preparations. CO 07. Explain the procedures and material management for bioresin manufacturing. CO 09. Describe how to make germination powder preparations and making squash preparations. CO 10. Explain the procedure for making germination powder

		preparatio	ons.							
	CO 11. Identify the process of making germination pollen									
	preparations and onion root squash.									
	CO 12. Explain the procedure for making onion root squash									
	preparations.									
	CO 13. Identify the procedure of making animal tissue									
	preparations.									
	CO 14. Explain the tissue cutting and fixation procedures									
	continued until clearing and embedding in paraffin.									
	CO 15. Explain how to cut the paraffin block to mounting with the									
	glass object.									
	the preparation of incubation fixation to mounting the									
	ombrue, staining and finishing with entelop and shipst									
	covered with a glass cover.									
	This course discuss about a variety of simple laboratory equipment									
	both	made of m	etal and glass a	nd how to use	them, the					
	introc	introduction and handling of chemicals, safety and security in the								
Content:	labora	atory, how to	work in the labor	atory, the introdu	uction of the					
	microscope and its maintenance, the manufacture of wholemount									
	es and diatoms,	and how to								
	The	ure microsco	DIC ODJECIS.							
	Thei	nai mark will	be weight as follow	/_						
	No	CO	Assessment Object	Assessment Technique	Weight					
Study/exam achievements:	1	CO 01 to	Observed	Survey,	100%					
		CO 16	attitudes,	test, rubrics						
			knolwedge,	and						
			and skills	manuals						
	Total 100%									
Form soft media:	Real	objects, mode	el, multimedia							
	A. F	PS UGM, 19	95. Petunjuk Prak	tikum Mikroteknik	Tumbuhan.					
	F	rogram Penc	didikan S2, Progra	im Studi Biologi,	Universitas					
		adjahmada,	Yogyakarta.	2000 Takaik I	o h o v o t o viu uno					
	 B. Koesmadji Wirjosoemarto, dKk., 2000. Teknik Laboratorium. Jurusan Pendidikan Biologi, FMIPA, UPI, Bandung. C. Wibisono Soerodikoesoemo, 1987. Petunjuk Praktikum Mikroteknik Tumbuhan Laboratorium Mikroteknik dan 									
Embriologi Tumbuhan, Fakultas Biologi, Univer Gadiahmada Yogyakarta										
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PLO and CO mapping

	PLO	PLO	PLO	PLO	PLO	PLO	PLO	PLO	PLO	PLO	PLO	PLO
	1	2	3	4	5	6	7	8	9	10	11	12
CO1				✓							✓	
CO2				✓								
CO3				✓		✓						
CO4				✓								
CO5				\checkmark								

CO6		\checkmark	✓				
CO7		\checkmark	✓				
CO8		\checkmark	✓				
CO9		\checkmark	✓				
CO10		\checkmark	✓				
CO11		\checkmark	✓		✓		
CO12		\checkmark	✓		✓	✓	
CO13		\checkmark	✓		✓		
CO14		\checkmark	✓		✓	✓	
CO15		\checkmark	✓		✓	✓	
CO16		\checkmark	\checkmark		\checkmark	✓	