Biocompatibility

Module designation	Providing an in-depth understanding of the meaning and principles of biocompatibility and bioactivity
Module level, if applicable	Master
Code	SPSTB212224
Subtitles, if applicable	-
Courses, if applicable	-
Semester(s) in which the module is taught	Odd/Even semester
Person responsible for the module	Prof. Dr. drg. Widowati Siswomihardjo, M.Sc
Lecturers	Prof. Dr. drg. Widowati Siswomihardjo, M.Sc drg. Intan Puspita, M.Kes. Ph.D.
Language	Indonesian & English
Relation to curriculum	Elective course
Type of teaching, contact hours	This course is planned to have 14 teaching weeks and 2 weeks of examination. several types of teaching conducted: - Classic tutorial, - Case-study learning, - Discussion - Laboratory Visit

Workload	This course is planned to have 13 teaching weeks, 1 week lab visit, and 2 weeks of examination. Lectures = 3 SKS x 50 minutes x 15 meetings = 2250 minutes = 37.5 hours = 37.5 hours/25 hours =1.5 ECTS Experiment/Laboratory Visit = 3 SKS x 60 minutes x 1 meeting = 180 minutes = 3 hours = 3/25 hours = 0.12 ECTS Assigment = 3 SKS x 60 minutes x 16 meetings = 2880 minutes = 48 hours = 48 hours/ 25 hours =1.92 ECTS Self Study = 3 SKS x 60 minutes x 16 meetings = 2880 minutes = 48 hours = 48 hours/ 25 hours =1.92 ECTS Total workload = 5.46 ECTS
Credit points	3 SKS (5.46 ECTS)
Requirements according to the examination regulations	-
Recommended prerequisites	-
Module objectives/intended learning outcomes	PLO 2: Able to design research related to artificial organs and medical instrumentation. PLO 3: Able to test and analyze relevant design results in biomedical engineering field. PLO 4: Able to communicate and work effectively in a multi-disciplinary team.

Content	1. Introduction to biocompatibility 2. Bioactivity of materials 3. Mechanical behavior 4. Material selection 5. Biocompatibility: testing and procedure: 1 6. Biocompatibility: testing and procedure: 2 7. Review of material and discussion 8. Independent assignment: Journal review 9. Mechanical interaction between biomaterials and biological systems (osseointegration) 10. Compatibility conditions: 1 11. Compatibility conditions: 2 12. Review of material and discussion 13. Group assignment: discussion 14. Group assignment: Presentation 15. Laboratory visit → biocompatibility testing
Study and examination requirements and forms of examination	Classes are conducted with 80% classic tutorial and 20% case study/project based presentation. Exams are done by written exam and/or task-based exam.
Media employed	PowerPoint, LMS (eLok, Google Classroom, etc.), and online meeting platform (Zoom, Gmeet, etc.)
Reading list	1. Black, J. 1992, " Biological Performance of Materials, 2nd Edition, Marcel & Dekker, New York 2. Park, J.B. dan Laker, R.S. 1992, " Biomaterials-An Introduction", 2nd Edition, Plenum Press, New York 3. Davis, J.R., 2003, ASM Vol. 23: Handbook of Materials for Medical Devices. ASM International
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