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MODULE HANDBOOK

Module name	Introduction to Differential Geometry
Module level, if applicable	Bachelor
Code, if applicable	MMM-3107
Subtitle, if applicable	
Courses, if applicable	Introduction to Differential Geometry
Semester(s) in which the module is taught	6th (Sixth)
Person responsible for the module	Chair of the Lab. of Analysis
Lecturer	Dr. Fajar Adi Kusumo, M.Si.
Language	Bahasa Indonesia
Relation to curriculum	Bachelor Degree, Elective, 6th semester
Type of teaching, contact hours	150 minutes lectures and 180 minutes structured activities per week.
Workload	Total workload is 136 hours per semester, which consists of 150 minutes lectures per week for 14 weeks, 180 minutes structured activities per week, 180 minutes individual study per week, in total is 16 weeks per semester, including mid exam and final exam.
Credit points	3
Requirements according to the examination regulations	Students have taken Introduction to Geometry Differential course (MMM-3107) and have an examination card where the course is stated on.
Recommended prerequisites	Students have taken Multivariable Calculus I course (MMM-2109) and have participated in the final examination of the course.
Module objectives/intended learning outcomes	After completing the course, the student will have : CO1. Ability to work with the concept of the Euclidean space which is based on the tangent vector. CO2. ability to describe the method of the moving frames and Isometry CO3. ability to compute the T-N-B Frames. CO4. ability to compute the tangent map and orientation on rigid motion of space. CO5. ability to analyze come cases which can be seen as applications of the Differential Geometry.
Content	Topics : a. Calculus on Euclidean Space : Tangent Vector, Directional Derivative of the tangent vector, Curves in $\mathbb{R}^3$, 1-Form, Differential Form, Mapping. b. Frame Field : Dot product of Vector Space, Reparameterization of the Curve, Frenet Formulas, Arbitrary-Speed Curves, Covariant Derivative, Frame Field, Connection Form, Structural Equation. c. Euclidean Geometry : Isometries of $\mathbb{R}^3$, The Tengent Map of an Isometry, Orientation, Euclidean Geometry, Congruence of Curves.
Study and examination requirements and forms of examination	The final mark will be weighted as follows: No — Assessment methods (components, activities) — Weight (percentage) 1 — Final Examination — 45% 2 — Mid-Term Examination — 30% 3 — Class Activities: Quiz, Homework, etc — 25% The initial cut-off points for grades A, B, C, and D should not be less than 80%, 70%, 50%, and 40%, respectively.

Media employed	White/Black Board, LCD Projector, Laptop/Computer
Reading List	1. Barrett O'Neill, *Elementary Differential Geometry*, Elsevier, 2006. 2. John A. Thorpe, *Elementary Topics in Differential Geometry*, Springer-Verlag New York, Inc, 1979

PLO and CO Mapping

	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9
CO 1			√			√			
CO 2			√			√			
CO 3			√						√
CO 4			√						√
CO 5			√			√			