Module Descriptions

Module designation	Entrepreneurship in Science Education Kewirausahaan dalam Pendidikan IPA
Course Code	698 (SiDia course identifier; institutional course code is represented by the course record)
Semester/Term	3rd Semester
Person responsible for the module	1. Dyah Permata Sari 2. Laily Rosdiana
Language	Indonesian
Relation to curriculum	Elective
Teaching methods	Project-Based Learning (PjBL) and Problem-Based Learning (PBL), supported by interactive lectures, case studies, guided discussions, collaborative assignments, business observation, business-plan development, product/service prototyping, presentations, reflection, and learning activities facilitated through SiDia LMS.
Workload	The course is designed as a 2-credit theoretical course (2 CU; T = 2, P = 0), equivalent to approximately 3.18 ECTS. The planned weekly learning workload is 2 × 50 minutes of scheduled class activities, 2 × 60 minutes of structured learning activities, and 2 × 60 minutes of independent study (total: 340 minutes per week), over 16 weeks.
Credit Point	3.18 ECTS.
Required and recommended prerequisites for joining the module	No formal prerequisite. Basic knowledge of science education, learning resources, and introductory business concepts is recommended.
Module Objectives/intended learning outcomes	Upon successful completion of this course, students will be able to: 1. Explain the fundamental concepts, principles, characteristics, values, and roles of entrepreneurship, particularly in the context of science education. 2. Demonstrate entrepreneurial motivation, an entrepreneurial mindset, creativity, resilience, and responsible professional behaviour. 3. Identify and analyse business opportunities and user needs in science education by observing educational contexts and gathering relevant information. 4. Develop creative and innovative business ideas for science education products or services, including learning media, teaching materials, science kits, laboratory-support products, educational services, and science-based products. 5. Apply business ethics, relevant legal considerations, and principles of social and environmental responsibility in entrepreneurial decision-making. 6. Analyse market conditions, target users, competitors, value propositions, and business feasibility using appropriate qualitative and quantitative information. 7. Design an integrated business plan that includes business model, production/operations, marketing, partnership, human-resource, and financial plans. 8. Develop and communicate a prototype or minimum viable product/service and use feedback to improve its value and feasibility. 9. Collaborate effectively, make evidence-informed decisions, solve business-related problems, and communicate entrepreneurial ideas and results orally and in writing.
Content	Entrepreneurship in Science Education is designed to develop students' entrepreneurial knowledge, mindset, and practical competencies by connecting entrepreneurship concepts with the knowledge and professional context of science education. Students explore how science-related knowledge, pedagogical skills, creativity, and technology can be transformed into useful products, services, or educational ventures that respond to real needs in schools and communities. The course addresses the following main areas of study: • Fundamental concepts of entrepreneurship: definitions, characteristics, benefits, types of entrepreneurship, entrepreneurial values, and the role of entrepreneurship in society. • Entrepreneurial motivation and personal development: self-motivation, dreams and goals, personal branding, entrepreneurial mindset, resilience, leadership, communication, and problem-solving skills. • Creativity, innovation, and opportunity recognition: creative thinking, identifying user problems, observing local needs, generating and selecting business ideas, and developing value propositions. • Entrepreneurship in science education: opportunities for science learning media, teaching materials, experiment kits, laboratory equipment and services, science communication, tutoring/training, educational technology, and science-based products. • Business ethics and responsible entrepreneurship: ethical conduct, consumer rights, intellectual property awareness, business permits and basic regulatory considerations, safety, sustainability, and social responsibility. • Market and business analysis: customer/user segmentation, market research, competitor analysis, value proposition, SWOT analysis, and business feasibility. • Business model and planning: business model canvas, business objectives, operational and

	production planning, resource requirements, partnership development, and risk management. • Marketing and commercialisation: branding, product positioning, pricing, promotion, digital marketing, sales communication, customer service, and evaluation of marketing strategies. • Human-resource and financial management: team roles, recruitment and task allocation, cost structure, pricing, revenue projections, cash flow, break-even analysis, and basic financial feasibility. • Business-plan development, prototyping, pitching, implementation planning, monitoring, evaluation, and reflection. The learning process is organised around a collaborative entrepreneurial project. Student teams identify a problem or opportunity in science education, conduct a simple market/user analysis, formulate a business idea, develop a business model and plan, create or demonstrate a prototype, obtain feedback, and present a feasible implementation strategy. Examples include innovative science learning media, low-cost science experiment kits, laboratory-support products, science learning services, and environmentally responsible science-based products. Indicative learning sequence (16 weeks): 1. Introduction to entrepreneurship in science education; analysis of entrepreneurship in everyday and educational contexts. 2. Entrepreneurial motivation, dreams, goals, personal branding, and entrepreneurial mindset. 3. Creativity, innovation, and identification of problems and opportunities in the surrounding environment. 4. Opportunity recognition and development of science-education business ideas. 5. Entrepreneurial ethics, responsible business conduct, and basic legal/regulatory awareness. 6. Market analysis: user needs, customer segments, competitors, and value proposition. 7. Business model development and preliminary feasibility analysis. 8. Mid-semester evaluation: presentation of opportunity analysis and initial business model. 9. Production and operational planning; product/service design and prototype development. 10. Marketing strategy, branding, pricing, promotion, and digital marketing. 11. Partnerships, human-resource planning, teamwork, and business communication. 12. Financial planning: capital, costs, pricing, revenue, cash flow, and break-even analysis. 13. Business-plan integration, risk analysis, and refinement based on feedback. 14. Prototype/product or service demonstration; user feedback and improvement. 15. Business pitching and presentation of the final business plan. 16. Final project evaluation, portfolio submission, reflection, and course evaluation. The course contributes to the development of graduates who can apply science-education knowledge in innovative contexts, respond to societal and educational needs, collaborate, solve problems, make decisions based on information and data, and communicate analyses and proposals responsibly. The course themes are also relevant to the Sustainable Development Goals, particularly SDG 4 (Quality Education), SDG 8 (Decent Work and Economic Growth), SDG 9 (Industry, Innovation and Infrastructure), and SDG 12 (Responsible Consumption and Production).
Study and examination requirements and forms of examination	Students are expected to participate actively in lectures and discussions, complete individual and group assignments, analyse entrepreneurial cases, undertake opportunity and market analysis, prepare a business plan, develop and/or demonstrate a prototype or minimum viable product/service, maintain a learning portfolio, and present and reflect on the entrepreneurial project. Assessment combines formative and summative methods and evaluates both the learning process and the quality of project outputs. Assessment components: 1. Participatory activities and engagement - attendance and contribution to discussions, case analysis, peer feedback, teamwork, and reflective activities (20%). 2. Individual and group assignments - entrepreneurial concept analysis, opportunity identification, market/user analysis, and business-model tasks (20%). 3. Entrepreneurial project/business plan - quality, originality, relevance, feasibility, and completeness of the business model and integrated business plan; prototype or product/service demonstration (40%). 4. Portfolio, pitch, and reflection - documentation of the process, evidence of improvement, quality of presentation/pitch, responses to questions, and individual reflection (20%). Total: 100%.
Reading List	Main references: 1. Hendro. (2011). Dasar-dasar kewirausahaan. Erlangga. 2. Covey, S. R. (1997). The 7 habits of highly effective people (Indonesian edition). Bina Rupa Aksara. 3. Kiyosaki, R. T. (2004). Rich dad, poor dad. PT SUN. 4. Osterwalder, A., & Pigneur, Y. (2012). Business model generation. Kompas Gramedia. Additional recommended references: 1. Osterwalder, A., Pigneur, Y., Bernarda, G., & Smith, A. (2014). Value proposition design: How to create products and services customers want. John Wiley & Sons.

	2. Ries, E. (2011). The lean startup: How today's entrepreneurs use continuous innovation to create radically successful businesses. Crown Business. 3. Blank, S., & Dorf, B. (2012). The startup owner's manual: The step-by-step guide for building a great company. K&S Ranch. 4. Hisrich, R. D., Peters, M. P., & Shepherd, D. A. (2017). Entrepreneurship (10th ed.). McGraw-Hill Education.