

Title of course	<b>Innovation in the digital era</b>
Responsible instructor	Prof Diego d'Andria, PhD
Learning objectives	<ul style="list-style-type: none"> <li>▪ Understand the concept of innovation from an economic perspective</li> <li>▪ Learn about the systemic nature of innovation and about the processes that may lead to innovation and its diffusion</li> <li>▪ Learn about different ways to model innovation from a macroeconomic perspective, about so-called endogenous and exogenous growth models</li> <li>▪ Learn about the innovation process from an individual perspective (single inventor or firm), how to model R&amp;D investment choices and the specificities of such investments</li> <li>▪ Learn about technological change, how it evolves through time and affects individual markets and the economy at large</li> <li>▪ Learn about the role of new enterprises in the innovation system, the challenges they meet and ways they access financing. In particular, learn about venture capital financing and crowdfunding</li> <li>▪ Learn about different approaches to the innovation process that may be based on a “closed” or “open” paradigm</li> <li>▪ Become aware of the many obstacles innovation meets which are due to financial, economic, legal and technological constraints.</li> <li>▪ Learn what intellectual property is, how it differs compared to non-intellectual property and how it applies to assets stemming from an innovative investment</li> <li>▪ Learn how the labour market for innovators work. Understand the motivations driving an individual into pursuing science or technical activities which are potentially able to produce innovations, the role of monetary motives and payment schemes, and how innovative productivity changes during one's life</li> <li>▪ Learn how accounting principles treat assets stemming from innovative investment</li> <li>▪ Learn about specific technological trajectories and trends in digital markets</li> </ul>
Course contents	<ol style="list-style-type: none"> <li>1. Defining innovation <ol style="list-style-type: none"> <li>a. What is innovation?</li> <li>b. Where does innovation come from?</li> <li>c. Research and Development (R&amp;D)</li> <li>d. The Frascati manual</li> </ol> </li> <li>2. The Macroeconomics of innovation <ol style="list-style-type: none"> <li>a. Innovation as a system</li> <li>b. Innovation in growth theory</li> <li>c. Innovation policy</li> </ol> </li> <li>3. Investing in Research and Development (R&amp;D) <ol style="list-style-type: none"> <li>a. Investment with risky or uncertain outcome</li> <li>b. Imitation and non-excludability</li> <li>c. Appropriability of the returns and “patent races”</li> </ol> </li> <li>4. Technological change <ol style="list-style-type: none"> <li>a. Technological waves</li> <li>b. The rise and fall of technologies</li> <li>c. Creative destruction and new enterprises</li> <li>d. Disruptive and harmful effects of innovation</li> </ol> </li> <li>5. Venture capital and crowdfunding</li> <li>6. Open innovation and crowdsourcing</li> <li>7. Barriers to innovation</li> </ol>

	8. Intellectual Property Rights (IPR) <ul style="list-style-type: none"> <li>a. Patents</li> <li>b. IPR and software</li> </ul> 9. The labour market for innovators <ul style="list-style-type: none"> <li>a. Motivations to invent</li> <li>b. Inventors' pay</li> <li>c. Inventors' productivity across the life cycle</li> </ul> 10. Accounting treatment of intangible assets and R&D 11. Innovation in digital services
Teaching methods	<ul style="list-style-type: none"> <li>▪ Lectures</li> <li>▪ In-class discussion</li> <li>▪ Case studies</li> <li>▪ Presentations of assigned papers delivered by the students</li> <li>▪ Self-study</li> </ul>
Prerequisites	There are no formal requirements.
Suggested reading	<ul style="list-style-type: none"> <li>▪ Hall B.H. and Rosenberg N. (2010), <i>Handbook of the Economics of Innovation</i>, Elsevier.</li> <li>▪ Fagerberg J., Mowery D.C. and Nelson R.R. (2005), <i>The Oxford Handbook of Innovation</i>, Oxford University Press.</li> <li>▪ Handouts and further references will be given during the classes.</li> </ul>
Applicability	This course is applicable to all economics- and business-oriented Bachelor programmes offered by Schmalkalden University of Applied Sciences.
Workload	Total workload: 240 hours, of them: <ul style="list-style-type: none"> <li>▪ Lecture: 60</li> <li>▪ Self-study: 180, of them:           <ul style="list-style-type: none"> <li>▪ Course preparation (in particular reading): 45</li> <li>▪ Follow-up: 45</li> <li>▪ Readings and exam preparation (including mid-term): 90</li> </ul> </li> </ul>
ECTS credit points and weighting factor	5 ECTS credit points; weighting factor: 5/180 for International Business and Economics 5/210 for Economics or Business Administration
Basis of student evaluation	<ul style="list-style-type: none"> <li>▪ Comprehensive written examination, 60 minutes (70%)</li> <li>▪ In-class presentation and discussion (30%)</li> </ul>
Time	First academic year
Frequency	Each academic year
Duration	One semester
Course type	Elective course
Remarks	Teaching language is English.