Module	**Basics of Smart Contracts and Creation of New Tokens**
Lecturer	PD Dr. rer. nat. habil. Mayutan Arumaithurai
Language	English
Teaching Method	Lecture + Tutorial
Credit Points / Duration	0.25 ECTS / 4 Lectures of 90 minutes each
Attendance Requirements	Basics in computer science and software engineering; Blockchain basics
Goals / Skills	The students will learn about the underlying principles that are required to create blockchain based smart contracts. They will understand why such smart contracts are better than currently prevalent means of creating contracts and to create exemplary smart contracts for various applications, especially those that involve machine-to-machine and IoT based communication. Moreover, with the rising popularity of ICOs, the students will learn how new tokens can be created on the Ethereum ecosystem. As a result of this course, the students will be equipped to evaluate as well as create smart contracts for a wide range of use-scenarios and create their own tokens when required.
Content	- Smart Contracts Basics - Establishing Our Own Private Ethereum Network - Smart Contracts on Solidity - Creation of new tokens using ERC20 - Analysis of Use Case Feasibility
Media Used	Electronic presentation, blackboard illustrations, discussion, practical exercises
Suggested Reading	- Satoshi Nakamoto: Bitcoin: A Peer-to-Peer Electronic Cash System - Dmitry Khovratovich et al.: SecureToken Development and Deployment - K Delmolino et al.: Step by step towards creating a safe smart contract: Lessons and insights from a cryptocurrency lab - K Christidis et al.: Blockchains and smart contracts for the internet of things - GW Peters et al.: Understanding modern banking ledgers through blockchain technologies: Future of transaction processing and smart contracts on the internet of money