

## 1. Course Description

**ศท.ว. 701 (953701) : การพัฒนาซอฟต์แวร์เบื้องต้น 3(3-0-6)**

### **INTRODUCTION TO SOFTWARE DEVELOPMENT**

Software engineer body of knowledge (SWEBOK) , software requirement, tools for software requirements, software design, tools for software design, software construction, tools for software construction, software testing, tools for software testing, software maintenance, tools for software maintenance

**ศท.ว. 702 (953702) : INTRODUCTION TO SOFTWARE PROCESS MANAGEMENT 3(3-0-6)**

Software engineer body of knowledge (SWEBOK) , introduction to software process management, software engineer process, software quality, software engineering models and methods, software configuration management, software engineer management, software engineering economics, software engineering professional practice

**ศท.คร. 703 (952703) : APPLICATIONS OF INFORMATION AND COMMUNICATION 3(3-0-6)**

### **TECHNOLOGY IN KNOWLEDGE MANAGEMENT**

Internet intranet and extranet, collaborative technology, document and content management system and search engines, electronics meeting systems and forum discussion system, follow-up system, exploration and evaluation system, lesson learned experience of experts for organization problem solving, electronic learning, ethical dilemma in ict utilization and computer crime act

**ศท.ว. 711 (953711) : INTRODUCTION TO AGILE SOFTWARE DEVELOPMENT 3(3-0-6)**

Introduction to agile software development, agile software development principle, agile software development processes, agile software project management process, agile software source code management process, team management for agile software development team, agile software development tools

**ศท.ว. 721 (953721) : SOFTWARE REQUIREMENTS ENGINEERING 3(3-0-6)**

Introduction to software life-cycle, software requirement body of knowledge, requirement engineering process, requirement elicitation, requirement analysis, requirement specification, requirement validation, requirement management, body of knowledge in software design, basic

concepts in software design, key issues in software design, software structure and architecture, software design quality analysis and evaluation, software design notation, software design strategies and methods

**ศท.วว.722 (953722) : SOFTWARE CONSTRUCTION AND EVOLUTION 3(3-0-6)**

Body of knowledge for software construction, reduction in complexity, anticipation of diversity, structuring for validation, use of external standard, body of knowledge for software testing, testing basic concepts and definitions, test levels, test techniques, test related measures, managing the test process, body of knowledge for software maintenance, basic concepts, maintenance process, key issues in software maintenance

**ศท.วว.723 (953723) SOFTWARE PROCESS AND QUALITY ASSURANCE 3(3-0-6)**

Body of knowledge for software process, software engineering process concepts, process infrastructure, process measurement, process definition, qualitative process analysis, process implementation and change, body of knowledge for software management, organization management, process/project management, software engineering measurement, body of knowledge for software quality, software quality concepts, purpose and planning of software quality assurance (SQA) and verification and validation (V&V), activities and techniques for SQA and verification and validation

**ศท.วว.724 (953724) : SOFTWARE CONFIGURATION MANAGEMENT 3(3-0-6)**

Management of the software configuration management process, software configuration identification, software configuration control, software configuration status accounting, software configuration auditing, software release management and delivery

**ศท.วว.725 (953725) SOFTWARE VERIFICATION AND VALIDATION 3(3-0-6)**  
**SOFTWARE VERIFICATION AND VALIDATION**

Software quality concept (SQC) , measuring the value of quality , quality description, dependability, special types of systems and quality needs ;propose and planning in SQC and V&V, planning activities, SQC plan , verification and validation plan ;activity and techniques in SQC and V&V, static techniques, dynamic techniques ; application of measurement for SQC and verification and validation, fundamental of measurement, measures, measurement analysis techniques, defect characterization

**ศท.ว.726 (953726) : SOFTWARE FORMAL SPECIFICATION**

**3(3-0-6)**

Introduction to formal specification, foundation of formal specification, meta-language, formal logic, reasoning for formal specification, verification of formal specification, static properties of formal specification, dynamic properties of specification, specification transformation, application of formal specification

**ศท.ว.741 (953741) : SOFTWARE ENGINEERING FOR LARGE ENTERPRISE APPLICATIONS 3(3-0-6)**

Enterprise requirements, Enterprise software design, Enterprise software development, Enterprise software test and implementation, Enterprise software maintenance, Enterprise resource planning life-cycle process, Supply chain management life-cycle process, Customer relationship management life-cycle process

**ศท.ว.742 (953742) : SOFTWARE ENGINEERING FOR INDUSTRIAL APPLICATIONS 3(3-0-6)**

Industrial requirements, Real-time control system design and implementation, Measurement system design and implementation, Statistical production control design and implementation, Closed loop manufacturing system design; Business planning ;Production planning; Master production scheduling; Material required planning; Capacity required planning, Closed loop manufacturing system implementation; Engineering; Product Catalog/Physical Inventory; Shop Floor Control; Sale Forecasting; Purchasing Order, Closed loop manufacturing system software life-cycle process.

**ศท.ว.743 (953743) : SOFTWARE ENGINEERING FOR BUSINESS APPLICATIONS 3(3-0-6)**

Business requirements, Transaction Processing System (TPS) design and implementation, Groupware design and implementation, Accounting Information System (AIS) design and implementation, Financial Information System (FIS) design and implementation, Management Information System (MIS) design and implementation, Decision Support System (DSS) design and implementation, Executive Information System (EIS) design and implementation, Business intelligence design and implementation, Application Service Provider (ASP) design and implementation.

**ศท.ว. 761 (953761) : SOFTWARE ENGINEERING FOR SYSTEM AND NETWORK PROGRAMMING 3(3-0-6)**

Introduction to system engineering and network programming, Introduction to computer network, network architecture, local area network (LAN)/ethernet, wireless network, mobile network, wide area network (WAN) , synchronous digital hierarchy (SDH) /synchronous optical network (SONET), TCP/IP-network & transport layer, TCP/IP-application layer, network design, network management, network technology, security implementation.

**ศท.ว. 762 (953762) : SOFTWARE ENGINEERING FOR MOBILE COMPUTING 3(3-0-6)**

Wireless system architecture, wireless technologies, wireless operating systems, wireless protocols, wireless data representation, wireless application development

**ศท.ว. 771 (953771) : USER EXPERIENCE DESIGN 3(3-0-6)**

Introduction to user experience and design thinking, prototypes, feedback, and critique, user research, synthesizing research and creating personas, defining user goals and user flows, paper prototyping and usability testing basics, user stories and feature prioritization, information architecture and navigation, responsive and design patterns, wire framing, visual design basics, high fidelity prototyping, advanced usability testing, user behavior change

**ศท.ว. 772 (953772) : INTRODUCTION TO BIG DATA 3(3-0-6)**

Introduction to big data, big data architecture and file system, MapReduce framework, big data clusters, big data management, big data analytics, applications of big data analytics

**ศท.ว. 773 (953773): ARTIFICIAL INTELLIGENCE TECHNIQUES IN SOFTWARE ENGINEERING 3(3-0-6)**

Introduction to artificial intelligence and software development, fundamental of artificial intelligence techniques; traditional approach; heuristics approach; meta-heuristics approach; fuzzy logic; artificial neural network, the selecting of appropriate artificial intelligence techniques for software development, computational problems in software development, application of artificial intelligence in software development

**ศท.ว. 774 (953774): SOFTWARE ENGINEERING FOR SERIOUS GAME DESIGN 3(3-0-6)**

Introduction to serious games, Introduction to software engineering in serious game design, software requirements engineering of serious games, serious game architecture and design approaches, learning theories in serious game design, online social Interaction in serious games, serious game assessment, limitations and ethical issues in serious games, applications of serious games and edutainment

**ศท.ว.781 (953781) : SOFTWARE PROJECT MANAGEMENT 3(3-0-6)**

Introduction to project management, software project integration management, software project scope management, software project time management, software project cost management, software project quality management, human resource management, project communications management, software project risk management, software project procurements management, software project stakeholders management

**ศท.ว.782 (953782) : SOFTWARE ENTREPRENEUR ECONOMICS 3(3-0-6)**

New economy, knowledge based economy, competitiveness in software business and industry, financial planning for software project development, financial and risk management in software business, investment methods in software business, Angel and venture capital, Joint venture, stock market.

**ศท.ว.783 (953783) : SECURITY SYSTEM AND MANAGEMENT 3(3-0-6)**

Security elements on information and communication technology systems, Risk management by model analysis and identification, planning and policy making for enterprise security management, security SDLC, firewall, intrusion detection, internet security, cryptography

**ศท.ว.784 (953784) : SOFTWARE PROJECT RISK MANAGEMENT 3(3-0-6)**

Identifying software project risks, risk analysis and assessment; qualitative approaches; quantitative approaches, cost risk; uncertainty in cost estimates; cost risk models, schedule risk; uncertainty in project schedules; schedule risk models , business forecast risk; business forecast uncertainty; business forecast risk models, alternative techniques and tools, risk monitoring and control, risk response and evaluation.

**ศท.ว.785 (953785) : KNOWLEDGE ENGINEERING AND MANAGEMENT 3(3-0-6)**

Introduction to knowledge management, knowledge engineering methodology, knowledge engineering approach, knowledge engineering tools, knowledge engineering technologies, knowledge engineering software, knowledge analysis and data structuring, knowledge engineering application

**ศท.วว.789 (953789) : SELECTED TOPICS IN SOFTWARE ENGINEERING 3(3-0-6)**

Intensive study of current interesting topics and new development in various fields of software engineering.

**ศท.วว.790 (953790) : RESEARCH METHODOLOGY IN SOFTWARE ENGINEERING 3(3-0-6)**

Basic research methodology, aspects of ethics and quality control in scientific works, tools of research, formulating research problems, review of related literature, writing the research proposal, conducting research in software engineering, rules and principles in writing research report

**ศท.วว.791 (953791) : SEMINAR IN SOFTWARE ENGINEERING TOPICS 3(3-0-6)**

Theoretical studies in information and communication technologies including the ethical issues and the digital and software engineering related laws under supervision of a faculty member. A written report and oral presentation are required.

**ศท.วว.798 (953798) : Independence Study 6 Credits**

**Prerequisite:** Approved thesis proposal or registration concurrently with submission of thesis proposal

**ศท.วว.799 (953799) : Master' Thesis 18 Credits**

Approved thesis proposal or registration concurrently with submission of thesis proposal