

A black and white photograph of a group of students in a laboratory or classroom setting. They are standing around tables, looking at posters and equipment. The room has large windows in the background. The text 'APRESENTAÇÃO DA DISCIPLINA' is overlaid in large white letters, and 'MODELAÇÃO E ANÁLISE DE SISTEMAS | TP 1' is overlaid in smaller light blue letters below it.

APRESENTAÇÃO DA DISCIPLINA

MODELAÇÃO E ANÁLISE DE SISTEMAS | TP 1

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V2021/10/15

universidade de aveiro
departamento de eletrónica,
telecomunicações e informática



Recursos da Unidade Curricular

Sítio da disciplina (Moodle)

Disponibilização de materiais e avisos

Entrega de trabalhos

Dossier pedagógico

Do que vamos falar e como funciona a UC

Elementos e Regras de avaliação

Plano semanal

Calendário da disciplina

Licenciatura em Engenharia Informática

Ano 1

1º Semestre	Área Científica	Créditos ECTS
Fundamentos de Programação	I/Ctp	6
Introdução às Tecnologias Web	I/Ctp	6
Modelação e Análise de Sistemas	I/Si	6
Álgebra Linear e Geometria Analítica	M	6
Cálculo I	M	6

MAS é uma introdução às **atividades de análise e especificação de sistemas de software**

Análise de sistemas

Disciplinas relacionadas com a caracterização do problema e especificação da solução técnica

Processo [de desenvolvimento]

Método sistemático de trabalho. Define atividades, papéis e subprodutos

Construção de modelos

Linguagem visual Unified Modeling Language – UML

Ferramentas CASE (*computer-aided software engineering*)

E.g.: [VisualParadigm](http://www.visual-paradigm.com/)

Periodic Table of Software Engineering

The following table is my personal collection of most important and fundamental elements of software engineering. It may serve as a guideline what a software engineer or programmer should learn, know and most of them practice. Some are small topics and/or methods, others are huge knowledge areas..

Requirements

Design

Lean IT

Maintenance

Infrastructure

Basics

Implementation

Code Analysis

Testing

Usability

Tools

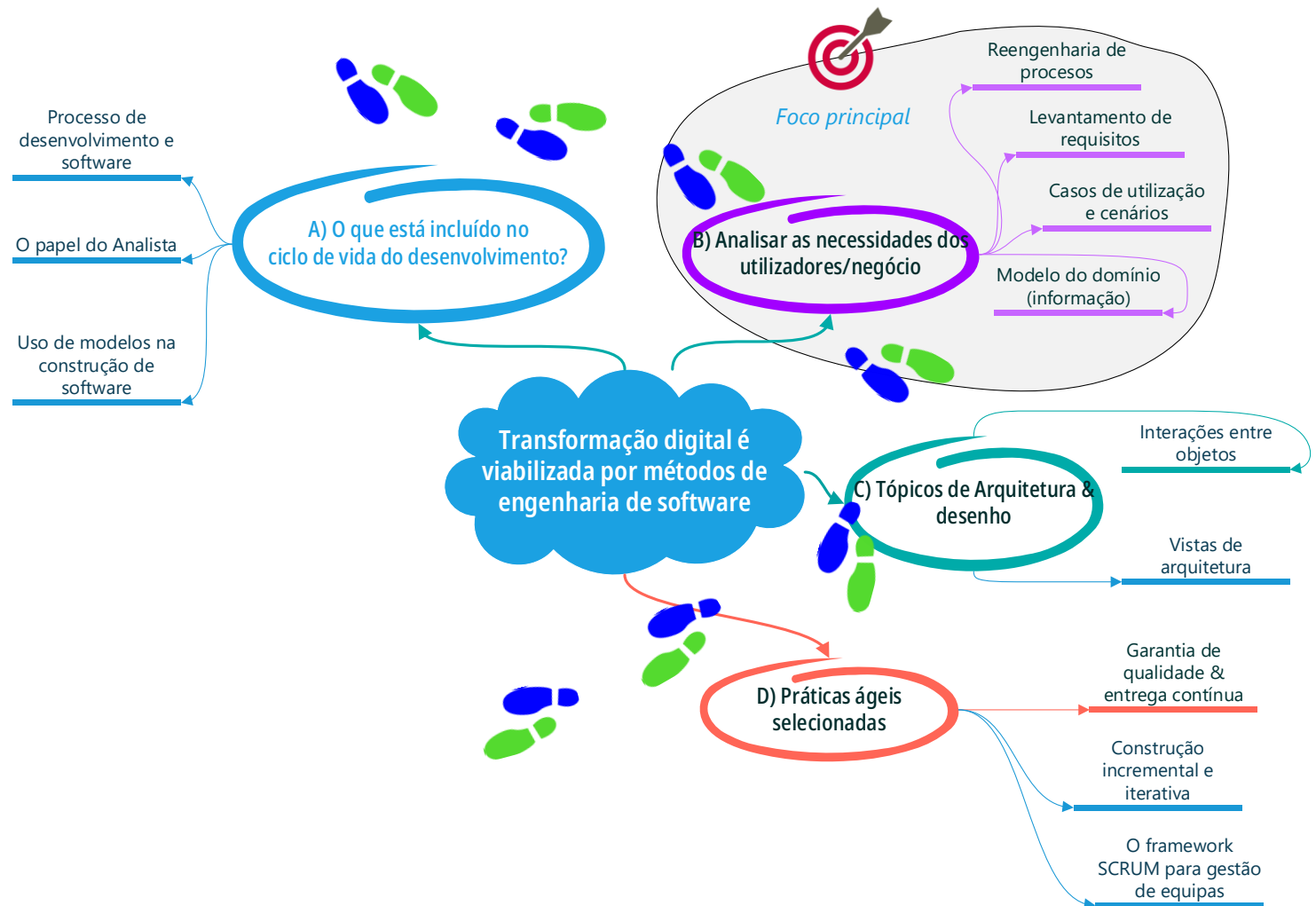
Management

1 Re Requirements Elicitation	2 Ri Risk Analysis																	3 Ra Requirements Analysis	4 Dc Component Design	5 Bcs Basic Coding Skills	6 Sa Static Code Analysis	7 Ut Unit Testing	8 Rca Detect Root Cause Analysis	9 At Code Analysis Tools	10 Exm Exception Management							
11 Ar Atomic Requirements	12 Dbd Database Design																	13 Cr Code Refactoring	14 Da Dynamic Code Analysis	15 It Integration Testing	16 Uit User Interface Design	17 Ct Continuous Integration Tools	18 Tam Task Management									
19 Rt Requirements Reviews	20 Dp Design Patterns	21 Sc Scrum	22 Rg Re-engineering	23 Bi Basics of ITIL	24 Bo Big-O Notation	25 Ad Algorithm Design	26 Ol Object Oriented Languages	27 Scb Software Security Basics	28 Scc Scientific Computing	29 Pac Parallel Computing	30 Nm Numerical Mathematics	31 Cp Code Peer Reviews	32 Vm Volume Metrics	33 Se Service Testing	34 Ua User Acceptance	35 Rt Requirements Management Tools	36 Prb Project Management Basics															
37 Rr Requirements Reviews	38 Ap Architecture Pattern	39 Ka Kanban	40 Rv Reverse engineering	41 Do DevOps	42 Bm Build Management	43 Ds Data Structures	44 Fl Functional Languages	45 Eb Encryption Basics	46 Dbt Database Theory	47 Gat Game Theory	48 Rob Robotic Basics	49 Cco Code Comments	50 Cm Complexity Metrics	51 Pt Performance Testing	52 Ul Usability Labs	53 Ide Integrated Development Environments	54 Est Estimation															
55 Tm Traceability Management	56 Lsd Large-scale system Design	57-71 Agile Methods		72 Pc Program Comprehension	73 Mo Monitoring	74 Ade Automated Deployment	75 Aop Aspect Oriented Programming	76 DI Declarative Languages	77 Np Network Protocols	78 Dis Distributed Computing	79 Sma State Machines	80 Pac Parallel Computing	81 Cf Code Format Standards	82 Cc Code Coverage	83 St Stress Testing	84 Tt Test Automation Tools	85 Pt Profiling Tools	86 Moa Measurement of Activities														
87 Rem Management of Requirements Portfolio	88 Dn Design Notations	89-103 Soft Skills		104 Mp Maintenance Planning	105 Icm IT Change Management	106 Tdm Test Data Management	107 Dc Distributed Computing	108 PI Procedural Languages	109 Ws Web Application Security	110 MI Machine Learning	111 AI Artificial Intelligence	112 Sdp Software Development Process	113 Cr Code Reuse	114 Dea Dependency Analysis	115 Ex Exploratory Testing	116 Mt Modeling Tools	117 Vc Version Control Systems	118 Pc Project Coordination														
																		57 Agp Agile Planning	58 Pp Pair Programming	59 Td Test-Driven Development	60 Dd Definition of Done	61 Cd Continuous Integration	62 Cy Continuous Delivery	63 Us User Stories	64 Bam Backlog Management	65 Sm Stand-up Meeting	66 Sp Spike Solutions	67 Pg Planning Game	68 No No Overline	69 Co Code Ownership	70 Ti Time Light	71 Sr System Requirement
																		89 Prs Presentation Skills	90 Ts Training Skills	91 Em Empathy	92 Crr Creation of Relationships	93 Cm Conflict Management	94 Ns Negotiation Skills	95 Rh Rhetoric	96 Is Intercultural Skills	97 Crt Creativity Techniques	98 Ma Marketing Basics	99 Lea Leadership Basics	100 Gom Good Manners	101 Im Intrinsic Motivation	102 Phf Physical Fitness	103 St Stop Talking

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<http://www.sw-engineering-candies.com/blog-1/periodic-table-of-software-engineering-know-how>

Itinerário para MAS



MAS e o currículo de engenharia de software (SE20014)



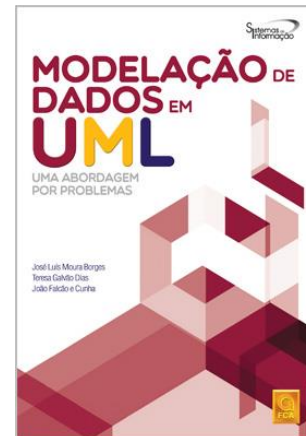
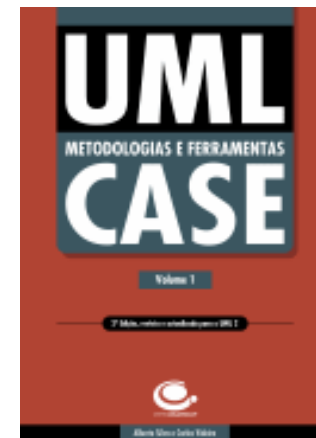
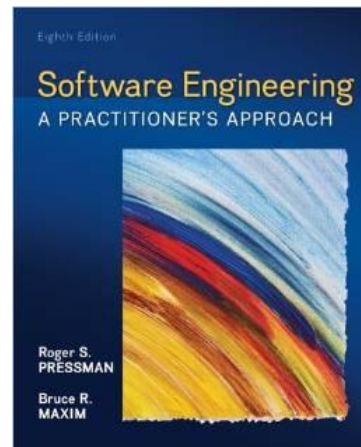
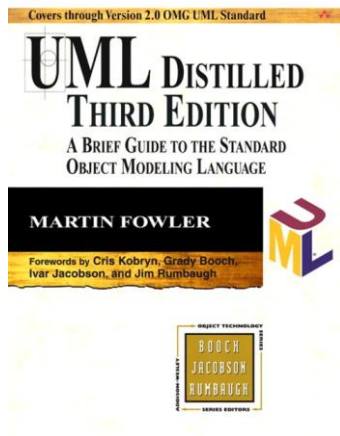
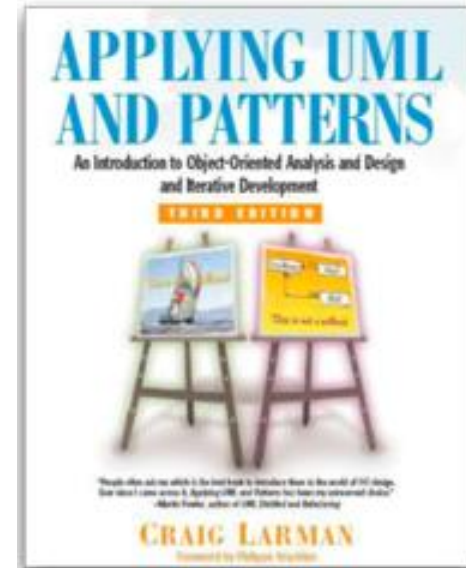
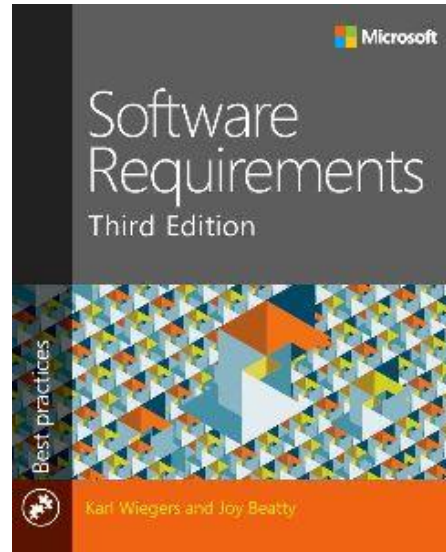
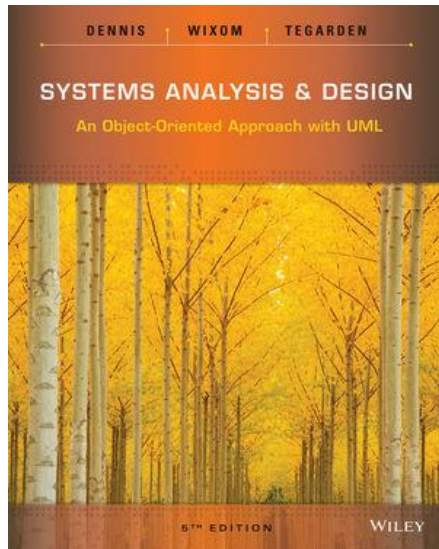
Software Engineering 2014

Curriculum Guidelines for Undergraduate Degree Programs in Software Engineering

<https://www.acm.org/education/curricula-recommendations>

KA/KU	Title	Hours	KA/KU	Title	Hours
CMP	Computing essentials	152	DES	Software design	48
CMP.cf	Computer science foundations	120	DES.con	Design concepts	3
CMP.ct	Construction technologies	20	DES.str	Design strategies	6
CMP.tl	Construction tools	12	DES.ar	Architectural design	12
			DES.hci	Human-computer interaction design	10
			DES.dd	Detailed design	14
			DES.ev	Design evaluation	3
FND	Mathematical and engineering fundamentals	80	VAV	Software verification and validation	37
FND.mf	Mathematical foundations	50	VAV.fnd	V&V terminology and foundations	5
FND.ef	Engineering foundations for software	22	VAV.rev	Reviews and static analysis	9
FND.ec	Engineering economics for software	8	VAV.tst	Testing	18
			VAV.par	Problem analysis and reporting	5
PRF	Professional practice	29	PRO	Software process	33
PRF.psy	Group dynamics and psychology	8	PRO.con	Process concepts	3
PRF.com	Communications skills (specific to SE)	15	PRO.imp	Process implementation	8
PRF.pr	Professionalism	6	PRO.pp	Project planning and tracking	8
			PRO.cm	Software configuration management	6
			PRO.evo	Evolution processes and activities	8
MAA	Software modeling and analysis	28	QUA	Software quality	10
MAA.md	Modeling foundations	8	QUA.cc	Software quality concepts and culture	2
MAA.tm	Types of models	12	QUA.pca	Process assurance	4
MAA.af	Analysis fundamentals	8	QUA.pda	Product assurance	4
REQ	Requirements analysis and specification	30	SEC	Security	20
REQ.rfd	Requirements fundamentals	6	SEC.sfd	Security fundamentals	4
REQ.er	Eliciting requirements	10	SEC.net	Computer and network security	8
REQ.rsd	Requirements specification and documentation	10	SEC.dev	Developing secure software	8
REQ.rv	Requirements validation	4			

Referências/bibliografia



Organização das Práticas

1a parte do semestre

- Guiões orientados
- Entregas dos labs (via Moodle):
 - Turmas Terça e Quarta → sexta
 - Turma Sexta → segunda.

2a parte do semester

- Projeto integrador

Aulas P decorrem em grupo

- A eng.a de SW é uma disciplina de grupo
- A modelação e análise de sistemas beneficia da discussão
- Abordagens pedagógicas: *Active learning, Cooperative Learning.*

