

Medical Imaging Entrepreneurship

(2 SWS / 4 Credits / 4 Block Lectures 13:00 – 17:00)

Lecture Roadmap

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<i>Mindmap of Lecture and individual lectures</i>	<i>Page 2</i>
<i>Assignments</i>	<i>Page 3</i>
<i>Invited Speakers and To Do before lecture block 1</i>	<i>Page 4</i>
<i>Block lecture 1 and To Do before lecture block 2</i>	<i>Page 5</i>
<i>Block lecture 2 and To Do before lecture block 3</i>	<i>Page 6</i>
<i>Block lecture 3 and To Do before lecture block 4</i>	<i>Page 7</i>
<i>Block lecture 4</i>	<i>Page 8</i>

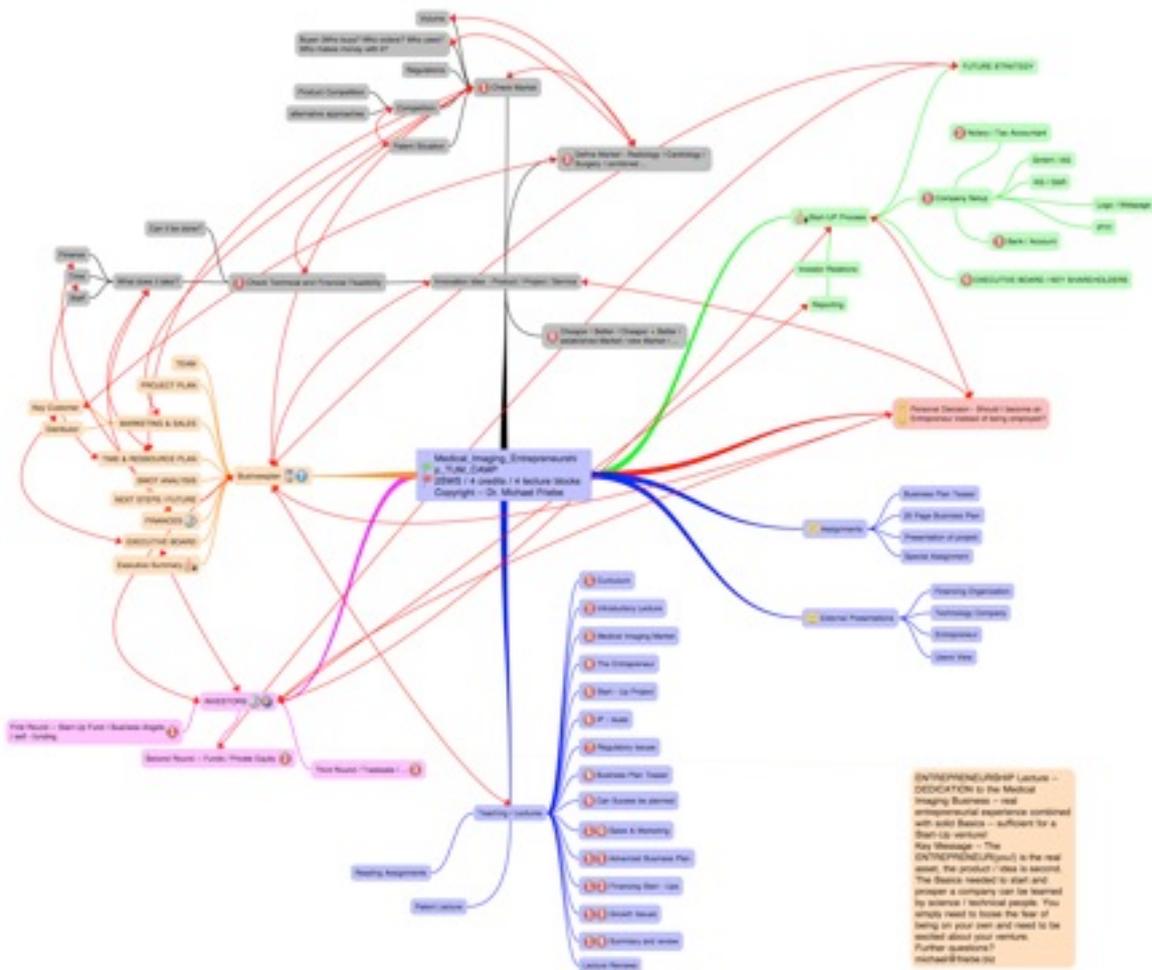
Abstract:

Medical Imaging and Diagnostics (including image guided therapies) is a highly innovative life science segment, which differs significantly from other apparently related areas.

The innovation is not limited to products but also includes services, and the cycle of innovation (apart from production and distribution) comprises a large variety of professions, e.g. physicians, engineers, physicists, administrators, and health insurance staff.

Compared to other industrial branches these products and services are usually developed faster and cheaper; hence, they are quicker to market. That means rapid results -- be it success or failure. Most innovation is conceived and initially commissioned in close cooperation between users and engineers / scientists. It is a tough road from an initial idea or concept to a product or service however. For scientist used to working in a regulated environment it is a very difficult step to take their own idea or prototype to the next level -- make a product out of it, create a company, think in terms of useability and marketability, and convince others of their idea and conceptual proposals.

This lecture will give an insight into the challenges and excitements of being a medical imaging entrepreneur. The goal is to teach students how to evaluate market potentials, how to analyze decision making and customer handling, and how to organize sales channels. The basics about being an entrepreneur – which qualifications are needed, which organization, management, finance, strategic issues are suitable in the medical imaging market – are covered in the proposed lecture. Two supervised assignments will give students a hands-on experience how to provide a realistic and sellable business concept for their own ideas or for a medical imaging challenge provided by the lecturer.



Lecture Mindmap

Individual Lecture Blocks:

1. Curriculum
2. Introductory lecture
3. Medical Imaging Market + Innovation in that segment
4. The Entrepreneur
5. Start-Up Project
6. IP - Issues
7. Regulatory - Issues -- Quality / FMEA
8. The Business Plan - TEASER
9. Can entrepreneurial success be planned?
10. Sales & Marketing Medical Imaging (D A CH countries)
11. The Business Plan (Advanced) - Milestones / Ressources / Finances
12. Start-Up Financing in Germany
13. Company Growth + Issues of the Start-Up
14. Summary and Conclusion + Feedback

ASSIGNMENTS:

Presentation at BLOCK 2 --> Present Team (CEO + Mgmt.), 2 slides on the market of the product / service (1. Who buys? Who uses? Who pays for it? // 2. Market size and Competition)

Before BLOCK 3 --> send to me via mail 2 days before lecture date block 3 Teaser document of the product/service chosen - bullet points rather than prosa! ... and already think about presentation (one page each for a total of 8 pages) ... Marketing / Design ...

1. *Description of product / service including an Executive Summary*
2. *IP relevant information [if applicable]*
3. *Market description in Germany [limit to D A CH]*
4. *Competition [companies, products, services, alternative approaches]*
5. *Milestones / Development- and Market goals*
6. *Financing and staff needs [what resources do you need for development, production, and market implementation - do not invent everything new, try to get resources the effective and cheap way, provide alternatives]*
7. *SWOT (Strength / Weaknesses / Opportunities / Threats) Analyses of product / service / management and company*
8. *Next steps*

Presentation at BLOCK 3 --> Present Initial Business Plan -- maximum 5 slides (plus cover and end), maximum 5 minutes, all members to present.

Before BLOCK 4 --> send to me via mail 2 days before lecture date block 4 FINAL Business plan based on teaser document -- corrected based on feedback and added knowledge from lecture, market research, and reading assignments -- maximum 20 pages.

Follow format of teaser document with more detail, more prosa, and geared toward a potential investor --- BUT, use **Business plan as an internal planning tool and strategy paper -- not initially for the investor, but for yourself!! REALISTIC!!**

Presentation at BLOCK 4 --> BUSINESSPLAN COMPETITION (PRICE!!!) with High-Class jury -- maximum 8 slides (plus cover and end), maximum 8 minutes, all members to present (plus prepare a 1 PAGE TEASER -- see example)



Invited Speakers (not all confirmed yet)

- Dipl.-Ing. Gerhard Härtl, Distrik Direktor, PHILIPS Healthcare
- Dr. Kämmerer, Radiologist, Chief Medical Officer, VISUS GmbH, <http://www.visus.com>
- Dr. Jörg Traub, CEO, SURGICEYE GmbH, <http://www.surgiceye.com>
- Dr. Bernd Goergen, Investment Manager, High Tech Gründerfonds Deutschland, <http://www.htgf.de>
- Dipl.-Ing. Paul-Willy Coenen, CEO, BYTEC GmbH, <http://www.bytec.de>

Reading

READING	Today, 2:44 PM	--	Folder
1. Stan_Lapidus_Medical_Entrepreneur_Harvard.pdf	Jan 29, 2011 11:02 PM	2.5 MB	Portable Document Format (PDF)
2. REE_Notes_Life_Science_eship.pdf	Jan 29, 2011 11:05 PM	143 KB	Portable Document Format (PDF)
3. JIBE_2001_Culture_In...e_Entrepreneurship.pdf	Jan 29, 2011 11:06 PM	381 KB	Portable Document Format (PDF)
4. Developing_Strength.pdf	Jan 29, 2011 11:06 PM	127 KB	Portable Document Format (PDF)
5. Medical_imaging_Basu	Jan 29, 2011 11:06 PM	57 KB	Portable Document Format (PDF)
6. Venture_Magazin_Medizintechnik .PDF	Jan 29, 2011 11:06 PM	3.5 MB	Portable Document Format (PDF)
7. IHK_092010_Wirtsch...ünchen&Oberbayern.pdf	Jan 29, 2011 11:07 PM	1.5 MB	Portable Document Format (PDF)
8. Schutzrechte_Engl_GPO.pdf	Feb 27, 2011 11:43 AM	164 KB	Portable Document Format (PDF)
9. Earlybird_Serial Entrepreneur.pdf	Jan 29, 2011 11:08 PM	4.3 MB	Portable Document Format (PDF)
10. Earlybird_Medical	Jan 29, 2011 11:02 PM	2.3 MB	Portable Document Format (PDF)
11. Emerging_Medical_Technologies_MIS.PDF	Jan 29, 2011 11:03 PM	4.9 MB	Portable Document Format (PDF)
12. Emerging_Medical_t...ogies_Telemedicine.PDF	Jan 29, 2011 11:04 PM	2.6 MB	Portable Document Format (PDF)
13. unternehmerTUM_H...Schlüsselkompetenzen	Jan 29, 2011 11:05 PM	6 MB	Portable Document Format (PDF)
14. netzwerk_nordbaye...inessplan_handbuch.pdf	Jan 29, 2011 11:05 PM	2.9 MB	Portable Document Format (PDF)
15. Business_Plan_TEMPLATE_TEASER_MF	Jan 29, 2011 11:05 PM	25 KB	Microsoft Excel 97-2004 workbook
16. Business_Plan_TEMPLATE_FINANCES_MF	Jan 29, 2011 11:05 PM	37 KB	Microsoft Excel 97-2004 workbook
17. Patents_DPA_Engl.pdf	Feb 27, 2011 11:42 AM	963 KB	Portable Document Format (PDF)
18. HBR_on_Entrepreneurship.pdf	Apr 4, 2011 11:04 AM	2.4 MB	Portable Document Format (PDF)
19. Drucker_Innovation_and_Entrepreneurship.pdf	Apr 4, 2011 11:07 AM	1.7 MB	Portable Document Format (PDF)
20. Gruendungsservice_TU_Berlin.pdf	Apr 13, 2011 1:59 PM	3.4 MB	Portable Document Format (PDF)
21. Do_More_Faster_COHEN.pdf	Apr 14, 2011 2:27 PM	2.2 MB	Portable Document Format (PDF)

1-17 and 20-21 available through download

- 18. Harvard Business Review on Entrepreneurship -- ISBN 978-0-87584-910-2
- 19. Peter Drucker -- Innovation and Entrepreneurship ISBN 978-0-06-085113-2

Projects

1-3 available through download

PROJECTS	Heute, 18:21	--	Ordner
bovarvib_flyer.pdf	04.08.09, 09:40	164 KB	Adobe PDF document
IPCAI2010__MolecularImagingSystem_He.pdf	12.10.10, 10:23	560 KB	Adobe PDF document
TMI2010_CamC_Navab.pdf	13.10.10, 13:12	1,2 MB	Adobe PDF document

Before Block 1

- ✓ **READ:** 1 – 4, 11 - 12 (from reading documents to be downloaded from webpage – see above)
- ✓ **READ:** 18, Chapter 1 "The Questions Every Entrepreneur Must Answer"
- ✓ **READ:** 19, Page 19 - 36
- ✓ **GET yourself FAMILIAR** with the Medical Imaging business segments - products and services (explain and list sources!! – Bonus Points!!)
- ✓ **Read through the Projects (see above) for Business Plan options -- alternatively use your own project!**

Block Lecture 1 -- 13:00 - 17:30

Prerequisites: See above

Learning objective:

Introduce the medical imaging market, discuss excitement of being an entrepreneur and explain needed entrepreneurial skillset.

13:00 - 13:45

Joint introduction and discussion of reading assignments, expectations.

13:45 - 14:15

Lecture Introduction "the medical imaging entrepreneur's cookbook", including curriculum, assignments, and expectations.

14:15 - 17:30 LECTURES

3. *Medical Imaging Market + Innovation in that segment*

4. *The Entrepreneur*

5. *Start-Up Project*

(If time permits also lectures 6 and/or 7)

Short Overview of the Business Plan Topics

Possibly one of the invited speakers to present!

(Dr. Kämmerer, Radiologe, VISUS GmbH)

Reading and work assignment between Lecture Block 1 + 2

- ✓ **READING:** 19, Page 37 - 140
- ✓ **READING:** 8 - 10, 17
- ✓ **READING:** 18, Chapter "How to write a Great Business Plan" and "How Entrepreneurs Craft Strategies that Work"

PREPARE for BLOCK 2

- Present Team (CEO + Mgmt.) + 2 slides on the market of the product / service
 - 1. *Who buys? Who uses? Who pays for it?*
 - 2. *Market size and Competition*

BLOCK 2: 13:00 - 17:30

Repeat from Lecture Block 1 + discussion of reading assignments

Lectures:

- (6. IP - Issues)
- (7. Regulatory - Issues -- Quality / FMEA)
- 8. The Business Plan - TEASER
- 9. Can entrepreneurial success be planned?
- 10. Sales & Marketing Medical Imaging (D A CH countries)

Discuss TEASER Business Plan Assignment in detail.

One or two guest presentations (20 Minutes each) on relevant topics from entrepreneurs, business leaders, or medical staff (Dipl.-Ing. Paul Coenen, Dr. Jörg Traub)

Reading and work assignment between Lecture Block 2 + 3

- ✓ **READING:** 19, Page 37 - 140
- ✓ **READING:** EXCEL spreadsheets (15 - 16) for Business Plan
- ✓ **READING:** 5 - 7

PREPARE for BLOCK 3 --> Teaser Business Plan

Teaser document of the product/service chosen - bullet points rather than prosa! ... and already think about presentation (one page each for a total of 8 pages)

1. *Description of product / service including an Executive Summary*
2. *IP relevant information [if applicable]*
3. *Market description in Germany [limit to D A CH]*
4. *Competition [companies, products, services, alternative approaches]*
5. *Milestones / Development- and Market goals*
6. *Financing and staff needs [what resources do you need for development, production, and market implementation - do not invent everything new, try to get resources the effective and cheap way, provide alternatives]*
7. *SWOT (Strength / Weaknesses / Opportunities / Threats) Analyses of product / service / management and company*
8. *Next steps*

Assignment due latest 2 days before begin of lecture block 3!

Groups will receive an individual written feedback on their project approach after their presentation -- see next paragraph. Lecture block 3 will start with a short presentation of the product/service (assume a non-technical, business and market oriented audience!) - maximum 5 minutes and maximum 5 content slides (title page and contact page do not count). Both team members to present.

BLOCK 3: 13:00 - 17:30

13:00 - 14:00

Presentation of Teaser Business Plan -- 5 Teams 5 Minutes each plus 5 Minutes feedback

14:00 - 17:30 LECTURES

Repeat from Lecture Block 2 and discussion of reading assignments

11. The Business Plan (Advanced) - Milestones / Ressources / Finances
12. Start-Up Financing in Germany
13. Company Growth + Issues of the Start-Up

Reading and work assignment between Lecture Block 3 + 4

- ✓ **READING:** 18, Chapter "How Much Money Does Your New Venture Need" and Chapter "Commercializing Technology: What the Best Companies Do"

PREPARE for BLOCK 4 --> FINAL Business Plan + 1 Page Teaser Document

Business plan based on TEASER Business Plan -- corrected based on feedback and added knowledge from lecture, market research, and reading assignments -- maximum 20 pages.

Follow previous format with more detail, more prosa, and geared toward a potential investor --- BUT, use **Business plan as an internal planning tool and strategy paper -- not initially for the investor, but for yourself!! REALISTIC!!**

Assignments in writing due 2 days before begin of lecture block 4!

Lecture block 4 will start with a short presentation of the product/service – Investor presentation in front of "real" investment professionals. Maximum 8 minutes and maximum 8 content slides (title page and contact page do not count). All team members to present.

BLOCK 4: 13:00 - 17:30**13:00 - 14:00**

Repeat from Lecture Block 3 and discussion of reading assignments

14:00 - 14:45 Guest Presentations

Two guest presentations (20 Minutes each) on relevant topics from entrepreneurs, business leaders, or medical staff (Dipl-Ing. Gerhard Härtl, Dr. Bernd Goergen)

14:45 - 16:15 Presentation Final Business Plan to "investor" panel

Panel consists of Guest presenters, lecturer, representative(s) of TUM) – max 8 minutes presentation per team and 8 minutes Q&A / feedback.

16:15 - 17:30 Summary and conclusion of lecture.

Final lecture, Winners celebration, Feedback forms, Certificates, Feedback from students.

