

Japanese Industrial Development Experience

Lecture

2 Credits

2nd Term

Subject No. : 00FC05

【担当教員】

【Instructors】

Yoshiki Mikami & Aruna Rohra Suda

【教員室または連絡先】

【Instructor' room / contact information】

Yoshiki Mikami, Nuclear Safety Bldg. 508. Phone:ext.9355

(総合研究棟605室、内線9355)

Suda Aruna Rohra

【授業目的および達成目標】

【Purpose and objective Goals】

The course is designed to give an overview of Japanese industrial development experience after Meiji Restoration until today. The role of techno-entrepreneurs is focused.

【授業キーワード】

【Keywords】

Japanese history, techno-entrepreneurs, engineering education, industrial development, textile, automobile, aircraft, bio-engineering, civil engineering, electronics

【授業内容および授業方法】

【Contents and method】

Lectures and reading assignments.

【授業項目】

【Topics】

The history of Japanese industrial development is reviewed. It is a good opportunity for non-Japanese students to get a bird's-eye view of Japanese industrial development history over 150 years from the Meiji-Restoration (1868) up to the present. The lives and works of selected pioneering engineers are highlighted.

- (1) Introduction - technologies in the pre-modern Japan
- (2) Yozo Yamao - the founding father of Engineering education in Japan
- (3) Sakichi Toyoda - a genius inventor who created automobile industry
- (4) "Rich Nation, Strong Army" - development of heavy industry and wars
- (5) Civil engineers - their passion for national infrastructure development
- (6) Jokichi Takamine - A pioneering bio-engineer, chemist, entrepreneur
- (7) Shinkansen story
- (8) Nippon Electric - the first joint venture in electronics industry
- (9) SONY Story
- (10) Light and shadows of industrial development - Minamata Tragedy

【教科書】

【Textbooks】

【参考書】

【Reference materials】

Handouts will be delivered in the class.

【成績の評価方法と評価項目】

【Evaluation method and Assessment points】

Students will be graded by written reports (reports in Japanese will be accepted).

【留意事項】

【Prerequisite / other notes】

The course is mainly targeted to foreign graduate students, but Japanese students are also welcomed.
Lectures are delivered in English.

【参照ホームページ名】

【Reference homepage】

Subject No. : 00FBA5

【担当教員】

【Instructor】

Koichiro Nakamura

【教員室または連絡先】

【Contact information】

Synthetic Research Bldg. Room #604 (ex. 9376)

総合研究棟604室（内線9376）

【授業目的および達成目標】

【Purpose and objective goals】

Creation of new market through the development, implementation, introduction and spread of innovative technologies is the key driver to the continuous economic growth.

This course aims to learn why innovation is important for the economic growth and how innovation policies have been supporting the development, implementation, introduction and spread of technologies. In addition, the recent advanced technologies, industry trends and innovation policies are introduced.

経済成長を続けていくためには、革新的な技術の開発・導入・普及を通じて新たな市場を創造するとともに、成長・拡大する市場を獲得していくことが必要である。

本授業においては、これまで日本経済及び世界経済の発展を支えてきた主な分野の産業技術を紹介するとともに、政策的にその開発・導入・普及をどのように後押ししてきたかについて習得することを目的とする。また、最近の技術・産業動向等をフォローしながら、近年のイノベーション政策についても紹介する。

【授業キーワード】

【Keywords】

Innovation, Economic growth, Technology, Policy

イノベーション、経済成長、技術、政策

【授業内容および授業方法】

【Contents and method】

The lectures on innovation, recent advanced technologies and related policies will be provided.

本授業においては、イノベーションと最近の先端技術や政策について講義を行う。

【授業項目】

【Contents】

1. What is the technology?
(技術とは)
2. What is the innovation?
(イノベーションとは)
3. How does the technology serve society and improve our lives?
(技術と社会の関係)
4. How does innovation take place and change the world?
(イノベーションはどのようにして起こるのか)
5. Why does the government promote innovation?
(なぜ政府はイノベーションを推進するのか)
6. What kind of government innovation policy has been taken?
(どのようなイノベーション政策がとられてきたか)

【教科書】

【Textbooks】

【参考書】

【Reference materials】

Presentation materials will be uploaded on the website.

講義資料をウェブサイトに掲載する。

【成績の評価方法と評価項目】

【Grading】

Contribution to class discussion, written reports, and presentation on the reports at class.
授業への貢献、レポートとそのプレゼンテーションにより評価する。

【留意事項】

【Prerequisite / other notes】

【参照ホームページ名】

【Reference homepage】

国際情勢特論
International Relations
Subject No. : 00HAA5

Lecture

2nd Credits
2nd Term

【担当教員】

【Instructor】

Naohisa Murakami

【教員室または連絡先】

【Instructor' room / contact information】

E-mail: naohisa@crux.ocn.ne.jp

【授業目的および達成目標】

【Purpose and objective Goals】

Globalization has accelerated after the end of the Cold War as symbolized by the fall of the Berlin Wall in 1989. This course is designed to study various aspects of globalization and ongoing efforts by international organizations and other entities to address issues emanating from it.

【授業キーワード】

【Keywords】

globalization, U.N., IMF, WTO, global warming, refugee problem, President Trump Brexit

【授業内容および授業方法】

【Contents and method】

This is a lecture-style course with emphasis also placed on presentations by students. Appropriate videos will be shown from time to time.

【授業項目】

【Topics】

Week 1: course introduction: lights and shadows of globalization
Week 2: nuclear weapons: remembering atrocities in Hiroshima and Nagasaki
Week 3: nuclear power plant accidents-Fukushima 5 years after
Week 4: chemical and biological weapons: civil war in Syria
Week 5: preventing genocides and other violations of human rights
Week 6: Terrorist groups and networks
Week 7: thereat to environmental security from global warming
Week 8: population explosion
Week 9: border disputes and refugee problem
Week 10: world trade-WTO and TPP
Week 11: roles of United Nations
Week 12: European integration and Brexit
Week 13: President Trump and U.S. foreign policy
Week 14: Ukraine: internationalization of a regional conflict
Week 15: student presentations and summary

【教科書】

【Textbooks】

Paul Wilkinson "International Relations: A Very Short Introduction", Oxford University Press, 2007

【参考書】

【Reference materials】

【成績の評価方法と評価項目】

【Evaluation method and Assessment points】

Students will be evaluated on the basis of participation and a term-end exam.
The exam schedule will be announced in class.

【留意事項】

【Prerequisite / other notes】

(1) The above schedule is subject to change at the discretion of the lecturer.

(2) Both international and Japanese students are expected to make a presentation on their country or region of origin on topics of interest (politics, economy, culture, society, etc.)

(3) This is an intensive course to be held in autumn.

【参照ホームページ名】

【Reference homepage】

Gigaku Innovation and Creativity

Lecture

2 Credits
1st Term

Subject No. : 00FCB5

【担当教員】

【Instructors】

Masahiro Iwahashi & Takeshi Miyashita

【教員室または連絡先】

【Instructor' room / contact information】

Elec. Bld. 5F, Room#510(Ext. 9520), Email: iwahashi@vos.nagaokaut.ac.jp

【授業目的および達成目標】

【Purpose and objective Goals】

COURSE DESCRIPTION

This course examines innovation and creativity from a GIGAKU viewpoint. GIGAKU is a term originally created in the Nagaoka University of Technology to represent the idea of applying the "Science of Technologies" to help mankind. Because of the abstract nature of this philosophy, the concept becomes very difficult to grasp if one does not possess Japanese language skills. The first part of the course examines GIGAKU theory, focusing on the technological conditions which lead to new ideas for science of technologies. The second part of the course examines how creativity and innovation can be managed and enhanced in industries, and how various research methods can be used in order to enhance GIGAKU Innovations. This course focuses on the practices and processes that engineers use to manage innovation effectively.

【授業キーワード】

【Keywords】

GIGAKU, Innovation, Creativity, Entrepreneurship

【授業内容および授業方法】

【Contents and method】

Interactive learning with individual presentations and case studies to acquire essentials of GIGAKU

【授業項目】

【Topics】

COURSE SYLLABUS

- Theory of GIGAKU
- Understanding innovation
- Needs for innovation in the service, manufacturing, engineering and other sectors
- Innovation and its impact on economies, cultures, and societies
- Developing an innovation strategy
- Creative thinking
- Creativity in entrepreneurship
- GIGAKU entrepreneurial skills needed for engineers towards to ventures
- GIGAKU applications in Mechanical, Electrical, Material, Civil, Environmental, Bio, and Information Engineering

【教科書】

【Textbooks】

【参考書】

【Reference materials】

Various materials prepared by instructors

【成績の評価方法と評価項目】

【Evaluation method and Assessment points】

Attendance 20%

Individual Presentation 40%

Group Project 40%

【留意事項】

【Prerequisite / other notes】

【参照ホームページ名】

【Reference homepage】

社会人留学生実践型インターンシップ
Internship for CPD Course Students
Subject No. : 05DAA6

Exercise

2 Credits
All Term

【担当教員】

【Instructors】

Masahiro Iwahashi & Others

【教員室または連絡先】

【Instructor' room / contact information】

Elec.Bld.5F, Room#510(Ext.9520), Email: iwahashi@vos.nagaokaut.ac.jp

【授業目的および達成目標】

【Purpose and objective Goals】

To get a good understanding on Japanese corporate (or organizational) culture through internship experience and lectures.

【授業キーワード】

【Keywords】

【授業内容および授業方法】

【Contents and method】

The course is composed of preparatory lectures, visit and internship:

1. Lectures on Japanese business/corporate systems and culture.
2. One-day visit tour to local factories by bus.
3. Internship experience of two weeks at the companies in Nagaoka area.

【授業項目】

【Topics】

1. Preparatory lectures will cover following topics:
 - (1) Japanese corporate and management culture
 - (2) Japanese Employment System
 - (3) Japanese Manufacturing Practice - KAIZEN, 5S, QC, TQC, etc.
2. One day visit includes selected local manufacturers and local public service offices
3. Internship experience will give you how Japanese company is managed and operating

【教科書】

【Textbooks】

Information guide will be delivered at the guidance.

【参考書】

【Reference materials】

NO

【成績の評価方法と評価項目】

【Evaluation method and Assessment points】

Students will be graded by the assignment report.

【留意事項】

【Prerequisite / other notes】

You need to finish Business Japanese class before taking this course.
Selection of companies will be made based on matching of interest between applicant students and companies.
Internship will be arranged during August or January to March.

【参照ホームページ名】

【Reference homepage】

境際協働プロジェクト研究
Interdisciplinary Joint Project Study
Subject No. : 05DAA7

Exercise

2 Credits
2nd Term to 3rd Term

【担当教員】

【Instructor】

Masahiro Iwahashi

【教員室または連絡先】

【Instructor' room / contact information】

Elec. Bld. 5F, Room#510(Ext. 9520), Email: iwahashi@vos.nagaokaut.ac.jp

【授業目的および達成目標】

【Purpose and objective Goals】

The objective of this course is to give students

1. opportunities for practicing market and technology surveys into his/her expertise domain.
2. collaborative work experience with members of different expertise and disciplines.

You can also get mid- or long-term directions for your future research work through this study.

【授業キーワード】

【Keywords】

cool innovation, market survey, technology survey, team-working, interdisciplinary study

【授業内容および授業方法】

【Contents and method】

The course is composed of three phases of study.

Phase 1: Market survey

Phase 2: Technology survey

Phase 3: Project proposal

Finally you have to present your Cool Innovation Project Proposal.

【授業項目】

【Topics】

Phase 1

In order to identify potential areas for cool innovation, you are requested to do market surveys. Visits, on-site interviews as well as document- and web-based surveys are recommended.

Phase 2

Once you have identified the potential areas for cool innovation, do technology surveys. At this stage, again, it is recommended to do various forms of surveys.

Phase 3

Finally you have to draw-up a project proposal to advance or materialize your cool innovation idea.

At the end of the semester, the course workshop will be organized. All students have to present project proposal at the workshop.

【教科書】

【Textbooks】

【参考書】

【Reference materials】

【成績の評価方法と評価項目】

【Evaluation method and Assessment points】

Students will be graded by the quality of the final proposal.

【留意事項】

【Prerequisite / other notes】

【参照ホームページ名】

【Reference homepage】 Cool Innovations

【参照ホームページアドレス】

<http://nutinnovations.blogspot.jp/>