



HIGHER SCHOOL OF ECONOMICS
NATIONAL RESEARCH UNIVERSITY



Institute for Statistical Studies
and Economics of Knowledge

Master's Programme

**GOVERNANCE OF SCIENCE,
TECHNOLOGY
AND INNOVATION**

**COURSE
CATALOGUE
2017–2018**

The background is a solid light blue color. In the top right and bottom left corners, there are decorative clusters of squares of various colors (including shades of blue, green, purple, orange, and grey) arranged in a stepped, staircase-like pattern. The word "OVERVIEW" is centered in the middle of the page in a white, sans-serif font.

OVERVIEW

Introduction

This booklet outlines the descriptions of the core and elective courses for the Master's program "Governance of Science, Technology and Innovation". It aims to help you choose your elective courses based on your interests. More information is available on the course website: <http://www.hse.ru/ma/sti/courses>

The described courses all follow a general structure. They are split between lectures and seminars. Lectures are 80 minute classroom hours, with a written examination at the end. Seminars involve classroom hours but also the preparation of essays, case study work and oral presentations. In most courses, it is required that the seminar be passed successfully before being admitted for the written examination. Details of the procedure are explained in the course outlines.

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Total	120	

¹ The course History of Technological Development in Society is offered by our Master's Program.

The image features a light purple background. In the top right and bottom left corners, there are decorative clusters of squares in various colors (blue, purple, green, yellow, grey) with white borders, arranged in a stepped, geometric pattern. The text 'CORE COURSES' is centered in the middle of the page in a white, sans-serif font.

CORE COURSES

9 credits

Economics of Innovation

Abstract

The course introduces the basic theories and concepts underlying state of the art innovation and technical change as central drivers for long-term economic growth. Particular attention is given to an economic model combined with a spatial theoretical framework of regional trajectories of growth. The model is based upon complementary processes around innovations forming development blocks that are driving structural change. Different types of scientific, technological and innovative cooperation between different actors, e.g., institutions of higher education, research institutes and companies of different countries are discussed in the course. There are various links between actors: formal, informal, project-related and these linkages are often unspecified in the long term. The course describes approaches of measuring the impact of innovation on socio-economic development. Furthermore, factors governing the diffusion of innovations, including the interplay between economic and institutional change, are studied.

Course Director



Dirk Meissner

Bio

Dr. Meissner is the Deputy Head of the Laboratory for Economics of Innovation and the Academic Supervisor of the Program. He has more than 15 years of experience in research and teaching technology and innovation management and policy. Prior to joining HSE, Dirk was responsible for technology and innovation policy at the presidential office of the Swiss Science and Technology Council and gathered a great amount of experience in top level consulting for key decision makers on technology and innovation management with Arthur D. Little. Dirk represented Switzerland and now represents Russia at the OECD Working Party on Technology and Innovation Policy. He has written over 50 articles and edited 3 books.

Competences

- Ability to analyze innovation systems
- Skills for analyzing innovation system governance models
- Understanding and designing linkages within innovation systems
- Benchmarking countries against innovation performance

References

- Fagerberg, J., Mowery, D., Nelson R. (2004) (eds). The Oxford Handbook of Innovation Oxford: Oxford University Press, 2004
- Bessant, J., Tidd J. (2009). Managing Innovation: Integrating technological, market and organizational change. Chichester: Wiley
- Rogers, E.M. (1995). Diffusion of innovations (4th edition). The Free Press. New York.
- Freeman, C, Soete, L. (1997). The Economics of Industrial Innovation, Third Ed., London: Pinter
- Frascati Manual 2002. Proposed Standard Practice for Surveys on Research and Experimental Development.2003. OECD. available at <http://www.oecd.org/bookshop?pub=922002081P1>
- Oslo Manual: Guidelines for Collecting and Interpreting Innovation Data, 3rd Edition. 2005. OECD & Eurostat. available at <http://www.oecd.org/dataoecd/35/61/2367580.pdf>

6 credits

Foresight and Strategic Planning

Abstract

Foresight is the art and science of anticipating and shaping the future. It is the first and key step of innovation in a rapidly changing world. A number of international organizations, national and regional governments as well as leading corporations have used Foresight to monitor trends, uncertainties, weak signals and wild cards; explore alternative futures under conditions of complexity and uncertainty; build future visions; identify key scientific and technological areas; develop new products and services; and recommend policies and strategies. This course has a theoretical background and explores quantitative and qualitative methods like horizon scanning, big data analysis, scenario planning, prioritization, Delphi surveys, strategic and technological roadmaps among others. The course will involve practical, hands-on sessions to allow students to gain practical experience by 'learning by doing'.

Course Director



**Ozcan
Saritas**

Bio

Dr. Ozcan Saritas is a Professor at the National Research University, Higher School of Economics (HSE), Moscow; and editor-in-chief of "Foresight" – a journal covering future studies, strategic thinking and policy. He worked as a Senior Research Fellow at the Manchester Institute of Innovation Research, The University of Manchester. His research focuses upon STI Policy with a particular emphasis on Socio-economic and Technological Foresight. He has extensive practical experience with international organizations, national governments, and corporate and industrial partners. He has published a number of articles in respected journals.

Competences

- Develop and apply quantitative and qualitative methods for Foresight
- Analyze emerging trends, drivers of change, weak signals and wild cards
- Explore alternative scenarios for the future
- Develop strategic and technological roadmaps
- Recommend policy and strategy for public and private partners

References

- Miles, I., Saritas, O. and Sokolov, A. (2016). Foresight for Science, Technology and Innovation, Springer Verlag, Berlin
- Meissner, D., Gokhberg, L. and Sokolov, A. (eds.) (2013). Science, Technology and Innovation Policy for the Future: Potentials and Limits of Foresight Studies, Springer Verlag, Berlin
- Loveridge, D. (2009). "Foresight: The art and science of anticipating the future", Routledge, New York and London
- Simerson, K.B. (2011). Strategic Planning: A Practical Guide To Strategy Formulation and Execution: A Practical Guide To Strategy Formulation And Execution, Abc-clio
- Miles, I. and Saritas, O. (2012). The depth of the horizon: Searching, Scanning and Widening Horizons, Foresight, 14, 6, 530–545

6 credits

Measurement of STI

Abstract

Decision-making in the STI domain requires evidence expressed in various indicators for measuring key aspects of STI development. Knowledge of such indicators is important in order to understand how they can help the regulation and use of scientific advancements, technologies, and innovations for economic growth, social welfare and sustainable development. The course introduces the basic approaches and methodologies for designing measurement concepts, the elaboration of indicators, approaches to data collection and finally the interpretation and analysis of the results. A strong focus is placed upon the international standards and best national practices of STI measurement. Such include the analysis of R&D inputs and outputs, technological and non-technological innovation, scientometrics, etc. Moreover, course is complemented with a review of recent initiatives in indicator development and a vision of the future development of STI studies.

Course Director**Konstantin Fursov****Bio**

Dr. Fursov holds a PhD in Sociology, he is the Head of Division for Analysis of R&D Performance at HSE ISSEK and a Senior Research Fellow of Laboratory for Economics of Innovation. Dr. Fursov is leading work on measuring various S&T outputs including their social effects. As a member of the OECD Working Party for National Experts on Science and Technology Indicators, he is frequently engaged in STI indicator development and interpretation among which are the revision of the Frascati Manual and the development of statistical frameworks on bio- and nanotechnologies. His current work is devoted to the analysis of public attitudes toward science and technology as well as studies of user-driven innovation.

Competences

- Knowledge of international standards in STI statistics and its domains
- Knowledge of methods used for collection of statistical data on STI
- Ability to select relevant data sources and construct main STI indicators
- Skills for choosing appropriate data sources and indicators for the analysis of STI development and use these results for policy recommendations
- Skills to make effective searches in citation and patent databases

References

- OECD (2015). Frascati Manual: Guidelines for Collecting and Reporting Data on Research and Experimental Development. Paris, OECD
- OECD (2010). Measuring Innovation: A New Perspective. Paris, OECD
- OECD (2005). Oslo Manual: Guidelines for Collecting and Interpreting Innovation Data, 3rd Edition. Paris, Luxembourg, OECD & Eurostat
- Godin, B. (2005). Measurement and Statistics on Science and Technology: 1920 to the Present. Routledge
- Moed, H. et al. (2004). Handbook of Quantitative Science and Technology Research – The Use of Publication and Patent. Kluwer Academic Publishers

3 credits

Scientific Research Methods for STI

Abstract

The course addresses the design, preparation and implementation of research projects. The central objective of the course is to equip students with the necessary skill set to independently pursue and plan academic research. To do so, the research activities will be broken down into individual steps and discussed in detail. The course presents an iterative process by which students will familiarize themselves with the core research processes and their coherent integration in light of existing academic traditions, research designs and methodologies. It includes an understanding of philosophical assumptions of both qualitative and quantitative research methods. Students will learn to critically reflect on the implications that these assumptions have for the research objective, data collection, analysis, writing, and subsequent dissemination strategies.

Course Director

**Konstantin
Fursov**



Bio

Dr. Fursov holds a PhD in Sociology, he is the Head of Division for Analysis of R&D Performance at HSE ISSEK and a Senior Research Fellow of Laboratory for Economics of Innovation. Dr. Fursov is leading work on measuring various S&T outputs including their social effects. As a member of the OECD Working Party for National Experts on Science and Technology Indicators, he is frequently engaged in STI indicator development and interpretation among which are the revision of the Frascati Manual and the development of statistical frameworks on bio- and nanotechnologies. His current work is devoted to the analysis of public attitudes toward science and technology as well as studies of user-driven innovation.

Competences

- Understanding research terminology
- Understanding the difference between quantitative, qualitative, and mixed methods and which research questions can be answered by using them
- Ability to use theory and previous research to create new research questions and hypotheses
- Skills to identify and apply concepts of variables, operationalization, causality and indicators relevant for answering selected research question
- Ability to independently develop a coherent research proposal

References

- Betz, F. (2011). *Managing science*. Springer
- Goldbort, R. (2006). *Writing for science*. Yale university press
- Leburn, J. (2007). *Scientific writing: a reader and writer's guide*. World Scientific Publishing: London
- Thomas, G. (2013). *How to do your research project: A guide for students in education and applied social sciences*. Sage: London
- Williams, M. (2000). *Science and social science*. London; New York Routledge

6 credits

Science, Technology and Innovation Policy

Abstract

Science, Technology and Innovation (STI) Policy is a key pillar of government policies to promote sustainable socio-economic development. After a brief introduction on the past, current and prospective place of STI policy within the overall economic development policy agenda, the course starts with a definition of the basic concepts, including that of a national innovation system as an integrative analytical framework. It then reviews in detail how an STI policy's main objectives are defined and specific STI measures to achieve them are designed and implemented in different national contexts and through international co-operation. Then, it reviews the general approaches and specific methodologies that are used to evaluate the efficiency and impact of individual policy measures, as well as that of the overall STI policy.

Course Director

Dirk Meissner



Bio

Dr. Meissner is the Deputy Head Laboratory for Economics of Innovation and Academic Supervisor of the Program. He has more than 15 years of experience in research and teaching technology and innovation management and policy. Prior to joining HSE, Dirk was responsible for technology and innovation policy at the presidential office of the Swiss Science and Technology Council and gathered a great amount of experience in top level consulting for key decision makers on technology and innovation management with Arthur D. Little. Dirk represented Switzerland and now represents Russia at the OECD Working Party on Technology and Innovation Policy. He has written over 50 articles and edited 3 books.

Competences

- Ability to analyze STI policy mixes
- Ability to understand the relationships between different policy measures
- Ability to interpret policy measures in a national context

References

- Edquist, C. 1997 (ed.). *Systems of Innovation: Technologies, Institutions and Organizations*, London 1997
- Freeman, C. (1987). *Technology and Economic Performance: Lessons from Japan*, Pinter, London.1987
- Lundvall, B. A. (1995) (ed.). *National Systems of Innovation: Towards a Theory of Innovation and Interactive Learning*. London, NewYork: Pinter 1995
- Nelson, R. N. (1993). *National Systems of Innovation: A Comparative Analysis*. NewYork: Oxford: Oxford University Press 1993
- OECD (1999). *Managing National Innovation Systems*. Organisation for Economic Co-Operation and Development, Paris 1999

9 credits

Strategies in STI Management

Abstract

The course brings together the basics of innovation management and the most important current challenges in innovation management, namely, open innovation, creativity, design and entrepreneurship and service innovation in light of innovation strategies. It provides a solid foundation of theoretical and practical innovation management strategies and emphasizes the entrepreneurial process as a way of building innovation skills in a company's new business development and portfolio context as well as start-up creation and the respective implications for the development and implementation of innovation strategies and corporate management. Organization, strategies, resources and the overall management of the entire innovation process are introduced and internal and external incentive schemes, idea pipeline management (inbound increase) and exploitation strategies (outbound increase) are discussed.

Course Director

**Dirk
Meissner**



Bio

Dr. Meissner is the Deputy Head Laboratory for Economics of Innovation and Academic Supervisor of the Program. He has more than 15 years of experience in research and teaching technology and innovation management and policy. Prior to joining HSE, Dirk was responsible for technology and innovation policy at the presidential office of the Swiss Science and Technology Council and gathered a great amount of experience in top level consulting for key decision makers on technology and innovation management with Arthur D. Little. Dirk represented Switzerland and now represents Russia at the OECD Working Party on Technology and Innovation Policy. He has written over 50 articles and edited 3 books.

Competences

- Ability to analyze innovation strategies
- Skills for developing organizational STI models
- An understanding of innovation climate determinants
- Developing innovation portfolios
- Ability to design innovation processes

References

- Chesbrough, H. (2005). Open Innovation: The New Imperative for Creating and Profiting from Technology. Boston, MA: Harvard Business School Press, 2005
- Christensen, Clayton (1997). The Innovator's Dilemma. Boston, MA: Harvard Business School Press, 1997
- Dodgson, M. Gann, D. and Salter A. (2008). The management of technological innovation: strategy and practice. Oxford University Press, 2008
- Schilling, M. (2011). Strategic Management of Technological Innovation. McGrawHill, International Edition 2011

3 credits

Business Model Innovation

Abstract

Business Model Innovation is a topic rarely taught at universities. Companies are often confronted with the challenge of adjusting their business model to changing environments but lack a profound understanding of what they should change and to which extent. The course thus provides insights to students about how companies can change their business model, identify opportunities for business model innovation and how such innovation and changes should be implemented at the organization. The course is designed for master's students and represents an upper level course. It discusses business model innovation as one of the most important forms of innovation and stresses the need for organizations to adjust to changing environments and to adapt their business models.

Course Director

**Boris
Ryabov**



Bio

Boris Ryabov currently operates as managing partner at Bright Capital, an international technology venture investment group co-founded in 2011. Prior to that, Boris worked in various industries (from banking and retail to mining and energy), in investment management, corporate development and strategy roles. Boris holds a PhD in Economics from the Financial University and a MBA at the Warwick Business School of Warwick University. Beyond that, he is a speaker and event organizer specializing in the future of organizations and knowledge

Competences

- Ability to classify change due to business model innovation
- Skills for describing and evaluating the risk attributed to business model change
- Successfully designing and implementing business model innovation
- Managing different local business models under the umbrella of multinational companies

References

- Afuah, A. (2014). *Business Model Innovation: Concepts, Analysis, and Cases*, Routledge, N.Y.
- Kaplan, S. (2012). *The Business Model Innovation Factory: How to Stay Relevant When the World Is Changing*, Wiley, N.Y.
- Amit, R., Zott, C. (2012). *Creating Value through Business Model Innovation*, MIT Sloan Management Review, Vol. 53 (3): pp. 41–49

3 credits

Corporate Foresight

Abstract

As evidenced the world practice, Strategic Foresight is one of the most effective long-term forecasting tools for companies' economic and technological development, providing a comprehensive view of the complex and diverse factors determining the dynamics of supply and demand on relevant markets coupled with technological trends. The main feature of Strategic Foresight for companies is a focus not on the identification of the most probable future, but on the formation of a priorities system and the conditions necessary for their implementation — a system of measures in the form of a roadmap and favorable institutional environment. The course will consist of lectures and seminars based on recent academic work from different academic perspectives; case studies and state of the art approaches applied by practitioners and interactive business games.

Course Director

Konstantin Vishnevskiy**Bio**

Dr. Vishnevskiy holds a PhD in Economics, he is the Head of the Department for Private–Public Partnership in Innovation Sector at the ISSEK, Higher School of Economics. Konstantin has long-standing experience in the development of roadmaps, the elaboration of Foresight methodology, corporate innovation development programs, and the integration Foresight into government policy. He has participated in and led groups in 100+ high-level research projects on Foresight of S&T development both in Russia and abroad. He has written about 70 scientific publications and made about 80 reports at professional conferences and workshops concerning Foresight, roadmapping and innovations.

Competences

- Knowledge of methods for corporate foresight
- Knowledge of best foresight practices at companies
- Ability to plan and launch foresight projects.
- Skills to use corporate foresight in priority-setting.
- Skills to use roadmapping in decision-making.

References

- Rohrbeck, R. (2010). Corporate Foresight: Towards a Maturity Model for the Future Orientation of a Firm, Physica, 2010
- Phaal, R., Farrukh, C., Probert, D. (2001). T-plan: the fast start to technology roadmapping: planning your route to success, Institute for Manufacturing, University of Cambridge, Cambridge, UK, 2001
- Battistella, C. (2014). The organisation of Corporate Foresight: A multiple case study in the telecommunication industry. Technological Forecasting and Social Change, 87, 60–79
- Vishnevskiy, K., Karasev, O., Meissner, D. (2015). Integrated roadmaps and corporate foresight as tools of innovation management: the case of Russian companies. Technological Forecasting and Social Change, 90, 433–443

3 credits

Finance of Innovation

Abstract

This course provides a background on how organizations make innovation project management decisions including financing and investing. A general introduction to financial issues in innovation projects is provided, followed by a discussion of the specifics of innovation project management for companies and the meaning of expected return and cost of capital. This illustrates the management of the financial structure and leverage for strategic development, it shows how managers, shareholders and investors resolve possible conflicts of interests based on corporate governance best practices. In addition, capital budgeting issues in innovation project management are considered. This helps students understand the principal factors determining companies' incentives for whether or not to invest in a project in the long term. Approaches towards assessing innovation projects with regard to the financial investment are discussed and sources of finance for innovation projects are introduced.

Course Director

Yury Dranev



Bio

Dr. Dranev graduated from Moscow State University. His PhD thesis on option pricing was defended in 2004 at the University of Ottawa. He has obtained extensive experience working at different financial institutions for more than 12 years. Yury has taught finance courses at HSE Department of Finance. He has actively participated in many ISSEK HSE research projects.

Competences

- Understanding of innovation from a financial point of view
- Knowledge of the principles of equity and debt financing
- Be familiar with approaches to the financing of innovation through venture capital and public support
- Estimating return on investments in innovation projects
- Skills for financial valuation of innovation projects

References

- Metrick A., Yasuda A. (2011). *Venture capital and the finance of innovation*. Wiley 2011
- Bo Z. (2002). *On the new Development of the Theory of Finance Innovation*. Nankai Economic Studies, 2002
- Cumming D. (2007). *Government policy towards entrepreneurial finance: Innovation investment funds*. *Journal of Business Venturing*, 2007
- Schmukler S.L. (2007). *Innovative Experiences in Access to Finance: Market-Friendly Roles for the Visible Hand? Policy Research Working Paper 4326*, World Bank 2007
- Brown J. R., Fazzari S. M., Petersen B.C. (2009). *Financing innovation and growth: Cash flow, external equity, and the 1990s R&D boom*. *The Journal of Finance*, 2009

3 credits

Innovation Strategies in Fintech

Abstract

This course is designed for master's students who want to study the impact of financial technology (fintech) trends on the financial sector and global economy. Fintech is related to technology-enabled business model innovation. The course examines areas of infrastructure, markets, marketplaces and financial services. The products and technologies considered in the course include distributed ledger, mobile payment systems, financial platforms and other technologies. The course discusses the current state of the fintech ecosystem including financial, economic and regulatory frameworks as well as the competitive landscape. Students will have the opportunity to develop innovation strategies for projects in the fintech area. The recommended but not required prerequisites include Finance of Innovation Projects and Risk Management in Innovation Projects.

Course Director

**Yury
Dranev**



Bio

Dr. Dranev graduated from Moscow State University. His PhD thesis on option pricing was defended in 2004 at the University of Ottawa. He has obtained extensive experience working at different financial institutions for more than 12 years. Yury has taught finance courses at HSE Department of Finance. He has actively participated in many ISSEK HSE research projects.

Competences

- Ability to identify fintech trends;
- Understanding of business model changes that emerge due to disruptive financial technology;
- Getting insight into the future of the financial sector;
- Skills for modelling fintech effects;
- Ability to analyze regulatory frameworks and competitive landscape.

References

- Ali, R., Barrdear, J., Clews, R., & Southgate, J. (2014). The economics of digital currencies. Bank of England Quarterly Bulletin, Q3 2014, 276–286
- Blach, J. (2011). Financial Innovations and Their Role in the Modern Financial System – Identification and Systematization of the Problem. Financial Internet Quarterly „e-Finanse”, 7(3), 13–26
- Gill, A. Q., Bunker, D., Seltsikas, P. (2015). Moving Forward: Emerging Themes in Financial Services Technologies' Adoption. Communications of the Association for Information Systems, 36, 205–230
- Akhavein, J., Frame, W. S., White, L. J. (2001). The Diffusion of Financial Innovations: An Examination of the Adoption of Small Business Credit Scoring by Large Banking Organizations. Journal of Business, 78(2), 577–596
- Hanafizadeh, P., Keating, B. W., Khedmatgozar, H. R. (2014). A systematic review of Internet banking adoption. Telematics and Informatics, 31, 492–510

3 credits

Intellectual Property Management

Abstract

Intellectual property rights are a means of protecting the use of inventions, technologies and knowledge for the party holding such a right. Increasingly for companies, but also research based institutions like universities and public research institutions, the question arises as to which knowledge and inventions to protect against other parties' use, in which geographical scope, in which application fields, etc. to aim at such protection.

Also, which share of knowledge and technology to protect measured against the overall knowledge and intellectual assets available becomes crucial. Furthermore, the question arises as to how to value intellectual property and how to determine the contribution of intellectual property to economic value in tradable goods.

The course gives an introduction to the management of intellectual property by means of intellectual property rights. Many different types of intellectual rights are discussed in a strategic company context, e.g., from the point of view of intellectual property rights as strategic weapons for the holder and owner of intellectual property. Special attention is given to the valuation of intellectual property and portfolio management approaches.

Competences

- Knowledge of fundamentals of intellectual property
- Ability to distinguish between the four major forms of intellectual property
- Skills to make decisions on issues arising throughout the IP lifespan

References

- Junghans C., Levy A. (2006). Intellectual Property Management. A Guide for Scientists, Engineers, Financiers, and Managers, WILEY 2006
- Choi, T.Y.; Budny, J.; Wank, N. (2004). Intellectual property management: a knowledge supply chain perspective. Business Horizons, 2004
- Reitzig M. (2004). Strategic Management of Intellectual Property, MIT Sloan Management Review 45, no. 3 (spring 2004)
- Jolly A., Philpott J. (eds.) (2004). A Handbook of Intellectual Property Management: Protecting, Developing and Exploiting your IP Assets, Kogan Page, 2004
- Bader, M.A. (2006). Intellectual Property Management in R&D Collaborations. The Case of the Service Industry Sector. Springer, 2006

Course Director

Aliya Ermakova



Bio

Aliya Ermakova is the Director for Legal Affairs at the National Research University Higher School of Economics (HSE), an Associate Professor at the Department of Educational Programs of ISSEK, HSE. Aliya is an intellectual property lawyer and patent attorney of the Russian Federation. She has more than 15 years of experience in the field of legal protection of IP. Throughout her career she has successfully participated and led various integrated projects aimed at the effective development and optimization of intellectual property assets at large industrial enterprises and universities in the Russian Federation. She also has experience in litigation on disputes concerning the infringement of copyrights and patent rights. In her current position, Aliya deals with managing HSE's IP portfolio including copyrights, patents, trademarks, trade secrets, developing and implementing HSE's IP protection strategies, managing license agreements, and providing a full range of IP services.

3 credits

Managing creativity and innovation

Abstract.....

Creativity plays one of the most important roles for the sustainable well-being of nations and their cultural and social progress as well as for companies' development. Creativity research is a multidisciplinary branch of the social sciences. The course is structured along three major domains: the economic and policy-oriented, the psychological and the managerial. Within the first, students will learn about the organizational features of the 'creative economy' and ways to measure it. The second shows how psychologists treat and assess individual creativity, and which actions could be taken to improve creativity skills. The third domain discusses creativity at companies and approaches to generating business ideas and establishing corporate culture favorable to creativity and innovation.

The course includes lectures and practical tasks including the presentation of reports, taking part in team games and creativity tests.

Course Director

Mikhail Gershman



Bio

Mikhail Gershman is an Associate Professor and the head of Innovation Policy Research Department at the HSE Institute for Statistical Studies and Economics of Knowledge. He has written around 30 publications on innovation management, STI policy and STI statistics. Mikhail coordinated and executed a large number of national and international research and consulting projects in this sphere providing advice to key decision makers at various Russian corporations and ministries. He holds a PhD degree in Economics.

Competences

- Understanding of the key creativity concepts
- Knowledge of the specificities of the creative economy
- Ability to use different creativity techniques
- Encouraging creativity within an organization
- Knowledge for improving creative skills

References

- Sawyer, K.(2012). Explaining Creativity: The Science of Human Innovation. Oxford University Press, 2012
- Rickards, T. (2015). Dilemmas of Leadership. 3rd Edition. Routledge, 2015
- Csikszentmihalyi, M. (2013) Creativity: Flow and the Psychology of Discovery and Invention. HarperCollins Publishers, 2013
- Howkins, J. (2004) The Creative Economy: How People Make Money From Ideas. Penguin Global, 2004
- Altshuller, G. (1999) Innovation Algorithm: TRIZ, systematic innovation and technical creativity. Worcester, Technical Innovation Center, 1999

3 credits

Marketing Innovation

Abstract

The course provides insights to students about how to adopt a comprehensive approach to innovation-to-market techniques, value creation, and relationship-based marketing instruments that shape the consumer experience. The course is an upper level course designed for master's students. It defines marketing innovation as a key element of innovation management and justifies the need for companies to respond to changing consumer demands and expectations. The students will learn the instruments of innovative product marketing and customer development at different stages of market adoption. The course includes lectures and seminars in the format of practical workshops. Students will work on group projects practicing the development of a marketing strategy and planning for innovative products.

Course Director

Irina Bazileva



Bio

Irina Bazileva is a program director and teacher at the Higher School of Marketing and Business Development, National Research University Higher School of Economics. Previously Irina had fifteen years of practical experience in marketing and management with international consulting companies. In 2010-2012, Irina Bazileva was listed in the Kommersant Rating Top 100 Russian Managers (Marketing Directors). Irina is an expert in market management, client experience, and go-to-market strategies; she has published more than 20 articles on marketing topics. She graduated from MGIMO University, and completed post-graduate program at the Institute for World Economy and International Relations.

Competences

- understanding of the instruments of market research;
- ability to identify the market segments;
- skills to plan the market lifecycle of an innovative product;
- skills to build competition matrix and identify the competitive advantage;
- skills to create the marketing mix for an innovative product.

References

- Trott, P. (2012). Innovation Management and New Product Development. Pearson Education Limited, 5th edition, 2012. Chapters 1, 2, 6, 11, 12, 13, 14, 15, 16
- Osterwalder A., Pigneur Y., Bernarda G. (2014). Value Proposition Design: How to Create Products and Services Customers Want (Strategyzer). Wiley, 2014
- Ries E. (2011). The Lean Startup: How Today's Entrepreneurs Use Continuous Innovation to Create Radically Successful Businesses. Crown Business, 2011
- Prahalad C.K., Krishnan M.S. (2009). The New Age of Innovation: Driving Cocreated Value Through Global Networks. McGraw-Hill Education, 2009
- Gunther McGrath R., Gourlay A. (2013). The End of Competitive Advantage: How to Keep Your Strategy Moving as Fast as Your Business. Harvard Business Review Press, 2013

3 credits

Public Private Partnerships for STI

Abstract

Public-private partnerships (PPPs) in research and innovation have become an important instrument of STI policy. PPPs help link supply and demand for research and innovation, PPPs complement the innovation policy mix and offer a framework for the public and private sectors to join forces in areas of research and innovation. PPPs for research and innovation can take a variety of forms ranging from institutionalized partnerships such as co-operative research agreements to large infrastructure projects where the partners commit to a longer term horizon. PPPs may involve the creation of a joint research center as well as cooperative research projects and the provision of training among others. They can be focused on specific targets or goals with a short time horizon or rather blue sky research oriented towards the long-term horizon. The course discusses modes of collaboration and partnerships, types of actors, conditions of PPPs like governance, publication policy, IP rules and methods of work and data sharing.

Course Director

Dirk Meissner



Bio

Dr. Meissner is the Deputy Head Laboratory for Economics of Innovation and Academic Supervisor of the Program. He has more than 15 years of experience in research and teaching technology and innovation management and policy. Prior to joining HSE, Dirk was responsible for technology and innovation policy at the presidential office of the Swiss Science and Technology Council and gathered a great amount of experience in top level consulting for key decision makers on technology and innovation management with Arthur D. Little. Dirk represented Switzerland and now represents Russia at the OECD Working Party on Technology and Innovation Policy. He has written over 50 articles and edited 3 books.

Competences

- Assessing the meaning of PPP for research
- Knowledge of different PPP governance models
- Understanding stakeholder management in PPPs

References

- Link, A.N. (2006): Public/Private Partnerships: Innovation Strategies and Policy Alternatives. New York: Springer
- Meissner, D. (2015). Public-private partnership models for science, technology, and innovation cooperation. *Journal of the Knowledge Economy* (2015). 1–21.
- OECD (2005): Public-Private Partnerships for Innovation: Synthesis Report. Paris
- OECD (2005): Public-Private Partnerships for Innovation: Country Case Studies. Paris
- The Business and Industry Advisory Committee to the OECD (2003): Promoting Better Public-Private Partnerships: Industry – University Relations. BIAC 2003

3 credits

Regional STI Policy

Abstract

The course explores conceptual issues and practical challenges of STI policy making on a regional level. Major topics covered include relevant theories of regional and innovation policies, clustering, urban development, regional innovation systems, as well as applied aspects of STI funding in multi-level governance, STI policy instruments, smart specialization strategies, regional Innovation scoreboards, etc. The course prepares students for efficient STI management in both the private and public sectors, and blends theory and practice by working on a wide range of cases. The combination of lectures and self-studies enable students to gain insight into the 'black box of innovations', understand problems and find policy solutions for both with a global perspective and within the Russian context. Students are expected to present the results of their research projects at seminars with invited foreign experts.

Course Director

Evgeniy Kutsenko



Bio

Evgeniy Kutsenko is a PhD, the Head of Russian Cluster Observatory at the National Research University Higher School of Economics. Prior to obtaining a position at the HSE, Evgeniy was involved in research projects and policy making for the World Bank, Russian Ministry for Economic Development, Russian Ministry for Education and Science, Moscow City Government and regional administrations. Dr. Kutsenko has a fine blend of knowledge and expertise in cluster analysis, regional innovation ranking, institutional economy and economic history, which make up his present area of interest.

Competences

- Understanding economic, managerial and institutional frameworks of STI
- Understanding actual research agenda of STI
- Knowledge of innovation policy instruments
- Ability to analyze STI policies from global cases
- Skills of STI instruments application in policymaking

References

- OECD (2011). Regions and Innovation Policy. OECD Reviews of Regional Innovation. OECD Publishing
- Asheim, B., Gertler, M. (2004). The Geography of Innovation: Regional Innovation Systems. in Fagerberg, J., D. Mowery, R. Nelson (eds.). The Oxford Handbook of Innovation, Oxford University Press, Oxford
- Hall, P. (2014). Cities of tomorrow: an intellectual history of urban planning and design since 1880. John Wiley & Sons.
- Foray D., David P., Hall B. (2009). Smart Specialisation - the Concept. Knowledge Economists Policy Brief. № 9
- Crescenzi R., Rodríguez-Pose A., Storper M. (2007). The territorial dynamics of innovation: a Europe-United States comparative analysis // Journal of Economic Geography. 7. P. 673–709

3 credits

Risk Management in Innovation Projects

Abstract

This upper level course discusses risk management from the perspective of innovation projects. It examines the various types of risks and risk management procedures in the context of innovation project management and emphasizes the application of risk management for strategy development rather than the technical details of statistical measurement and pricing of derivatives. The course considers issues of risk indication, measurement, aggregation and management, performance evaluation and strategic decision making. The course does not require extensive knowledge of mathematics and statistics but taking Finance of Innovation as a pre-requisite will be very helpful.

Course Director

**Yury
Dranev**



Bio

Dr. Dranev graduated from Moscow State University. His PhD thesis on option pricing was defended in 2004 at the University of Ottawa. He has obtained extensive experience working at different financial institutions for more than 12 years. Yury has taught finance courses at HSE Department of Finance. He has actively participated in many ISSEK HSE research projects.

Competences

- Understanding main features of risk management;
- Knowing key risk measurement methods applicable to different types of risks in STI projects;
- Skills of risk identification;
- How and when to use risk assessment procedures;
- Ability to evaluate risk exposure in STI projects; the process of risk measurement, risk aggregation, performance evaluation and strategic decision making.

References

- Lam J. (2014). Enterprise Risk Management: From Incentives to Controls, Second edition, Wiley Finance, 2014
- Wang J. (2010). A performance-oriented risk management framework for innovative R&D projects, Innovation, 2010
- Doherty N. (2000). Integrate Risk Management: Techniques and Strategies for Managing Corporate Risk. Englewood Cliffs. NJ: Prentice-Hall, 2000.
- Banks E. (2005). Alternative Risk Transfer: Integrated Risk Management through Insurance, Reinsurance, and the Capital Markets. The Wiley Finance Series, 2005.

3 credits

Social Studies of STI

Abstract

The course provides an overview of theoretical approaches that help in conceptualizing scientific and technological development and innovation processes in contemporary societies. During the course students will learn about the philosophical background, historical and institutional contexts of STI studies including the analysis of both classical and contemporary theoretical works as well as particular cases that will be used as examples or illustrations of the covered topics. Some or all of the following topics will be covered in the course: the evolution and development of approaches to analyze the phenomena of technoscience and technology, interactions between science and society, public engagement in innovation development. The course welcomes all those interested in the sociology of science, history and philosophy of science and technology, science, technology and innovation studies.

Competences

- Knowledge of philosophical background, historical and institutional contexts of STI studies
- Knowledge of main theoretical approaches that help in conceptualizing S&T development and innovation processes in contemporary societies
- Ability to use the basic concepts in the literature to explain STI development as socially shaped phenomena
- Skills to discuss topics related to the social organization of STI and their role in society at a highly professional level
- Skills to come up with one's own research proposals

References

- Sismondo S. (2010). Introduction to Science and Technology Studies. 2nd Edition. Sussex: Wiley-Blackwell
- MacKenzie, D.A., Wajcman J. (1999). The Social Shaping of Technology. Buckingham; Philadelphia: Open University Press
- Frickel, S., Gross, N. (2005). A General Theory of Scientific/intellectual Movements. American Sociological Review 70(2): 204–32
- Bijker, W.E., Hughes, T.P., Pinch, T. J. (Ed). (1987). The Social Construction of Technological Systems: New Directions in the Sociology and History of Technology. Cambridge, Mass.: MIT Press
- Von Hippel, E. (2005). Democratizing Innovation: The Evolving Phenomenon of User Innovation. Journal for Betriebswirtschaft 55(1):63–78

Course Director

Konstantin Fursov



Bio

Dr. Fursov holds a PhD in Sociology, he is the Head of Division for Analysis of R&D Performance at HSE ISSEK and a Senior Research Fellow of Laboratory for Economics of Innovation. Dr. Fursov is leading work on measuring various S&T outputs including their social effects. As a member of the OECD Working Party for National Experts on Science and Technology Indicators, he is frequently engaged in a STI indicator development and interpretation among which are the revision of the Frascati Manual and the development of statistical frameworks on bio- and nanotechnologies. His current work is devoted to the analysis of public attitudes toward science and technology as well as studies of user-driven innovation.

3 credits

The History of Technological Development

Abstract.....

The subject of this course is the interplay of technological development with cultural and political aspects of societies. The first part covers ancient civil and military technologies and reflects on early forms of human organizations of society in light of trade and war. The course then progresses with the emergence of the inventor in the time of the Renaissance and then progresses to the Industrial Revolution and the far-reaching consequences of the emergence of the factory for human lives. In the second part, the course covers various sectors that shaped the 19th and 20th centuries, such as electricity and electronics, automobile design and manufacturing and the electronic gaming industry. The course offers a critical approach to technological determinism and concludes with an outlook on the future ways of interaction between technologies and societies.

Course Director



Thomas Thurner

Bio

Thomas Thurner started his academic career as an Assistant Professor at the University of Innsbruck and later held the position of Associate Professor at the University of Cape Town, South Africa. He now works as a Professor at the National Research University Higher School of Economics (HSE). Thomas studied International Business and later History at the University of Innsbruck. His research interests cover various aspects of innovation management, user involvement and new organizational forms of technology development.

Competences.....

- Understand the key milestones of technological development in human history
- Understand the interplay between technological development and cultural and political realities
- Understand technological path developments
- Critically reflect on technological determinism
- Understand the historical roots of present and future technological developments

References.....

- Bijker, W. E., Hughes, T. P., Pinch, T., & Douglas, D. G. (2012). *The social construction of technological systems: New directions in the sociology and history of technology*. MIT press
- Kelly, Kevin. (2010). *What technology wants*. Penguin
- Edgerton, D. (2011). *Shock of the old: Technology and global history since 1900*. Profile books

6 credits

Massive Open Online Courses (MOOCs)

MOOCs are blended online courses followed by classroom examination. Each year students have to choose one MOOC from the list recommended by the program. The chosen courses should be approved by the academic director and included into the student's study plan. Grades and credits received for the courses are accepted by the programme.



TERM PAPER
&
RESEARCH
SEMINAR

6 credits

Term paper

The term paper is a mandatory piece of academic work prepared by all students in the first year of study. It is designed to train students' competences in analyzing and structuring specific problems, develop students' capabilities in structured writing and verbal presentation, and in creative thinking. Students define and agree upon a topic for their term paper with their supervisor. The term paper results in a written text. The successful completion of the written text with a grade of at least '4' is a precondition for admission to an oral defense of the term paper. The grade for term paper is calculated based upon the sum of the grades for the written text and the oral defense.

6 credits

Research Seminar – Year 1

Abstract

During the first year, the Research Seminar combines traditional educational activities and students' self-initiated and conducted work on selected problems. Students present and defend their own works which result from the term papers prepared in the first year and discuss academic works presented by others. The seminar mainly serves as a platform for discussion of scientific works. Students are instructed and trained in presenting their work and participating in discussions. The topics of the Research Seminar are defined at the beginning of the academic year and correspond to students' term papers. The aim is to give students early stage guidance for the publication and presentation of their research in light of future Master's Thesis in study year 2. Participation in the Research Seminar is mandatory for all students.

Competences

- Presenting and defending academic work
- Participation in academic discussions
- Synthesizing academic presentations

References

To be announced in the Research Seminar

9 credits

Research Seminar – Year 2

Abstract

Year 2 Research Seminar is a significant element of the Master's program curriculum. The Research Seminar is a forum for the intensive discussion of current ideas, issues and projects in the field of STI, as well as of students' own research projects. In addition, the Research Seminar helps to deepen students' knowledge of selected methods for academic work, their skills in collaborative research and the promotion of research and publication activities.

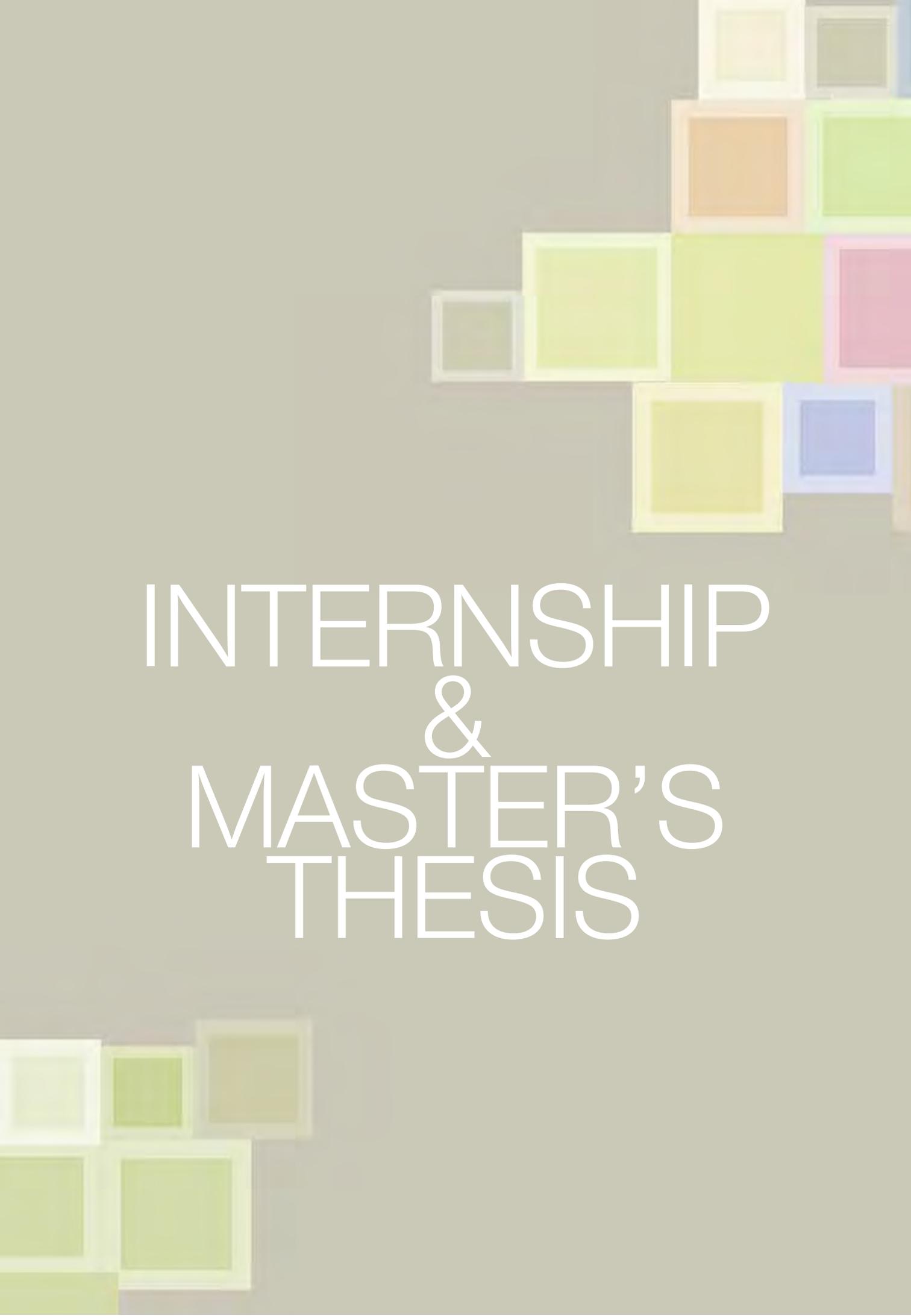
Topics of the Research Seminar are defined at the beginning of the academic year and usually correspond to needs detected during the preparation of the term paper in year 1. The aim is to integrate students in professional research work and give students early stage guidance for the publication and presentation of their research. During the Research Seminar, students prepare their initial proposal for the Master's Thesis and present this to their supervisors and colleagues.

Competences

- Academic work
- Planning and structuring academic projects
- Preparing research project proposal

References

To be announced in the Research Seminar

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INTERNSHIP & MASTER'S THESIS

15 credits Internship

The Internship is an integral element of the program during which the students learn to apply knowledge gathered in lectures and seminars. The internship lasts at least 360 working hours equal to 15 credits. At the beginning of the internship, students define one or more projects with direct relevance to the courses included in the Master's Program. The student and the organization hosting the student as an intern jointly develop an internship program, which needs to be approved by the internship council. After the internship, students prepare a report about the major achievements during the internship and the competences acquired. This report is the basis for giving credits to the students. The internship is run by the hosting organization and the student. During the period of the internship, the department provides consultations for students by an assigned supervisor. The supervisor and the program director might undertake occasional visits to the hosting organization. In addition to applying their acquired knowledge, students are expected to detect problems and challenges faced by the hosting organization that are relevant to the field of study and introduce these in seminars during the program.

The goals of the internship are the practical use of theoretical knowledge, the practical experience of environments where such projects are practiced in daily operations, and the identification of research needs at the internship host organization. These goals are designed to stimulate students' research on the Master's thesis and HSE research activities.

Students are expected to work on dedicated projects with direct relevance to their chosen field of specialization. Projects have to be described and approved before the internship, including the objectives, aim(s) and approach(es) to be taken. After the internship, a report must be prepared which shows how the project work was done and what results were achieved.

24 credits Master's Thesis

The Master's Thesis is a student's own independent piece of academic work accomplished during the second half of the second year of study. Students are offered different topics to choose from by faculty members. Alternatively, students may propose their own topics to faculty members, who should approve the topic. Each student receives individual supervision when preparing their Master's Thesis. Overall, students are given six months to complete the Master's Thesis. This period may be extended on the grounds of and according to procedures described in the Program Regulations.

Students can prepare the Master's Thesis internally at NRU HSE ISSEK or at a firm, in a government institution, international organization, or a special university. Master's Theses that are prepared with an external organization are jointly supervised by a NRU HSE ISSEK faculty member and a second supervisor appointed by the external organization. The Master's Thesis might also be prepared under student exchange agreements or double degree agreements recognized by the program. The written thesis should be approximately 60 pages of text including references but excluding annexes. Successfully completed written theses are stored and made publicly available. A dedicated online series for the Master's Theses will be installed at NRU HSE ISSEK.

A written thesis graded as 'failed' can be repeated. If the written thesis is repeated, another topic must be chosen and approved. Repetition of the written thesis is allowed twice. If the written thesis fails on the second attempt, it cannot be repeated and the student is not considered to have met the requirements for obtaining the degree.

During preparation of the Master's Thesis, students are obliged to attend the colloquium. During the colloquium, each student will introduce the theme of their Master's Thesis present interim results.

Each Thesis is complemented by an oral defense. The defense typically involves a 30-minute presentation of the Thesis by the student and a discussion with the supervisor. The defense is open to the public to attend. Successfully passing the written thesis with a grade of no less than '4' is a precondition for admission to oral defense.

The Master's Thesis and the oral defense are graded separately. The overall grade for the Master's Thesis is calculated as the equally weighted sum of the written thesis and the defense. The defense is conducted within four weeks after the submission and approval of the written thesis.

In cases where the written thesis is prepared at NRU HSE ISSEK, the internal supervisor will propose a second examiner of the defense who is a recognized expert on the topic. A defense considered failed can be repeated twice. If the defense is repeated, another topic is given by the examiners. The new topic has to be in the field of the written thesis topic. If the second defense is graded a 'fail', it cannot be repeated and the student is not considered to have met the requirements for obtaining the degree.