

2.6.1 Q₁M	<p><i>The institution has stated learning outcomes (generic and programme specific)/graduate attributes which are integrated into the assessment process and widely publicized through the website and other documents</i></p> <p>Write a description in maximum of 500 words</p> <p>File Description</p> <p>Upload any additional information</p> <p>Provide links as Additional Information</p> <p>Upload COs for all courses (exemplars from Glossary)</p>	10
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TEXT

The students of all the programs offered by TERI SAS are expected to demonstrate:

1. Advanced knowledge and understanding to comprehend and address the challenges relating to sustainability issues at local, national and global levels.
2. Commitment to bring a positive change through application of learning and critical thinking to create scientific, technological and policy innovations for strengthening resilience in communities.
3. Skill sets and capacity to collaborate, create and professionally communicate solutions for environmental and sustainable development pathways in urban and rural habitats.
4. Be future agents of change who would influence the society towards adopting ethical practices in development trajectory.

Description of Mechanism of Communication

The Program Outcomes (PO), Program Specific Outcomes (PSO) and the Course Outcomes (CO) along with course outlines (detailed course contents including andragogy, supporting reading material, evaluation criteria, etc.) for all the programs and courses are stated and displayed on the website. The Program Outcomes and Program Specific Outcomes are mentioned on the program overview webpage of the TERI SAS website for each program ([Annexure 2.6.1.A](#) also captures these). Brochures of programmes also mention these ([link](#)).

Syllabus, 'Course Objectives' and 'Learning Outcomes' for every course are displayed on the program outline webpage. The PSOs and COs are articulated after extensive discussions, reviews of the programme structure and course syllabi by external experts (see [here](#) for reporting of National Consultation Workshop to review introduction of the LL.M. programme), meetings of the MPEC, the Board of Studies and adoption before the Academic Council. [Annexure 2.6.1.B](#) captures COs of all courses.

In addition to the website, all the expected outcomes of a program, and courses offered are communicated to students at the program level orientation program organized at the onset of each semester (see [here](#) for reporting of orientation programme for newly admitted students of M.Sc. Economics). This gives students an opportunity to be aware and seek clarifications, if any. Finally, at the commencement of a semester, each instructor discusses the detailed course objectives and learning outcomes with the students.

Taking advantage of the relatively small class strength, each faculty has an open-door policy (or designated contact hours) and students have ample opportunity to express themselves including seeking clarifications about the PSOs and COs from the instructors and program coordinators ([Annexure 2.6.1.C](#) contains one such communication to the students). Each student also has a mentor, who often provides useful suggestions on the choice of optional courses, among others (captured in 2.3.3).

2.6.1.A

S. No.	Program Name (and URL)	Year of introduction	Program specific outcomes
1	M Sc (Environmental Science and Resource Management)	2012	<p>The graduates of the M.Sc. (ESRM) programme would be able to,</p> <ul style="list-style-type: none"> • Attain knowledge of concepts and methods for a universal understanding of the environment and natural resources and its sustainable use for environmental problem solving • Learn various environmental and policy tools and techniques with cross sectoral overview to effectively converse with all the stakeholders (policymakers, scientists and communities) • Understand the transnational character of environmental problems and ways of addressing them, including interactions between humans and environment across scales and sectors • Reveal aptitude in quantitative methods, qualitative analysis, critical thinking, and written and oral communication needed to conduct work as interdisciplinary scholars and practitioners
2	M Sc (Climate Science & Policy)	2010	<p>The graduates of the M.Sc. (CSP) programme would be able to,</p> <ul style="list-style-type: none"> • Gain in-depth knowledge of the scientific foundations of climate change, its impact on social and economic systems, and relevant policy debates and tools. • Receive hands-on experience in applying scientific, methodological, and policy tools, concepts, and data sources towards analysis, appraisal, evaluation, and mitigation of climate-related challenges at different levels of governance and across sectors • Communicate effectively with scientists and policymakers on the subject • Design appropriate methodologies and institutional arrangements for science based climate change governance. • Develop approaches for context specific decision making relevant for adaptation to and mitigation of climate change.
3	M Sc (Geoinformatics)	2008	<ul style="list-style-type: none"> • Extensive hands-on expertise: The programme provides extensive hands-on through courses and research projects relevant to the Geoinformatics domain. • Exposure to state-of-the art tools and technologies: This programme provides exposure to cutting-edge tools and technologies such as latest remote sensing technology (e.g.,UAV), programming (e.g.,Python and R), database management like Oracle and MySQL, and other standard COTS and FOSS relevant to the field and other cross-cutting domains. • Conceptual clarity: The programme provides conceptual clarity of the fundamentals to face the continuous technological advancements in the field of Geoinformatics. • Capacity building: Capacity building of the students to face the technological advancements in the field of Geoinformatics and demonstrate confidence in undertaking new (unfamiliar) analysis. • Leadership skills: This programme provides leadership skills in their respective field as well as in other cross-cutting domains.

2.6.1.2

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4	<u>M Sc (Economics)</u>	2010	<p>At the end of pursuing the MSc (Economics) with specialization in Environment and Resource Economics program the students are expected to:</p> <ul style="list-style-type: none"> • Gain in-depth knowledge of the concepts and theories of Economics with core aspects of ecological, environmental, and natural resource economics. • Receive hands-on experience in applying economic concepts, theories, and methods towards analysis, appraisal and evaluation of a wide range of economic problems and policies. • Develop analytical and writing skills through preparation of critical review, literature survey, research proposal and Masters' Thesis. • Develop and apply quantitative skills including numerical, statistical and econometric analysis using packages such as STATA and R.
5	<u>M Sc (Plant Biotechnology)</u>	2008	<ul style="list-style-type: none"> • A research-oriented learning that develops analytical and integrative problem-solving approaches. • Specialized knowledge and practical training to address contemporary problems in academia and industry. • Awareness of ethical issues and regulatory considerations while addressing societal needs for sustainability.
6	<u>M Sc (Water Science & Governance)</u>	2014	<ul style="list-style-type: none"> • Gain interdisciplinary understanding of the contemporary water related challenges through experiential learning • Appreciate the social economic, technical, political, and environmental aspects of water management • Get hands on training to develop key transferable skills to be able to execute independent projects
7	<u>MBA (Infrastructure Management)</u>	2007	<p>At the end of pursuing the MBA (Infrastructure Management) program the students are expected to:</p> <ul style="list-style-type: none"> • Gain in-depth knowledge of the functional areas of Infrastructure Management domain • Acquire expertise to apply management techniques in the infrastructure sector to lead in a resource-sensitive world amid increasing competition and sustainability concerns • Develop key analytical skills in identification and resolution of issues pertaining to the regulation and management of infrastructure regime • Evolve sustainable domain perspectives for the purpose of planning, implementation, and control of businesses in the infrastructure sector • Develop and apply skills of quantitative and qualitative research for practical evaluation of major policy issues through industry exposures and field visits • Accustom to the global perspective towards sustainable business practices in the area of Infrastructure Management
8	<u>MBA (Sustainability Management)</u>	2010	<p>At the end of pursuing the MBA (Sustainability Management) program the students are expected achieve the following -</p> <ul style="list-style-type: none"> • Ability to formulate, evaluate and implement crucial business strategies with core facets of Finance, Marketing and Sustainability; • Competence to make ethical business decisions with social and environmental consciousness; • Leadership and teamwork mastery of problem solving in a resource-sensitive world amid increasing competition; • Training in tools, techniques, and frameworks for developing critical thinking & communication skills; • Develop expertise to recognize the need, challenges and ways to approach for sustainable businesses through resource optimization without compromising on profitability and competitiveness; • Gain hands-on experience in applying business, economic, management, legal and sustainability concepts & practice along training in quantitative and qualitative methods of research.

2.6.1.3

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9	MA (Public Policy & Sustainable Development)	2005	<p>The PP&SD programme offers a unique opportunity to understand public policy-making across sectors such as energy, environment, natural resources, social security and public finance. It assists the participants in experiential learning through the following factors;</p> <ul style="list-style-type: none"> • Identify problems and the scope for policy intervention • Build up strong analytical capabilities that help to evaluate when policy interventions are needed and also their necessary impacts • Gain an understanding of the normative basis of choice of policy objectives and trade-off • Analyse policy constraints, design of public institutions, and choice of policy instruments • Pragmatic assessment of unintended consequences of various policies • Facilitate formulation of processes of stakeholder consultations and debates
10	MA (Sustainable Development Practice)	2009	<p>By the end of MA SDP programme, the students:-</p> <ul style="list-style-type: none"> • Gain in-depth knowledge of development, theories, approaches and practices • Learn about the latest practices promoting sustainable development from national and international experts (academicians and practitioners), from partner universities, research institutes and development agencies • Gain experience in real world problem analysis and problem solving through global classroom, minor and major project • Develop skills for project design and management, development communication, social research, cross-cultural and intercultural adaptation, entrepreneurial and innovative business development • Get substantive fieldwork experiences through group practicum for integrating knowledge and skills taught in the course
11	M.Tech (Renewable Energy Engineering & Management)	2010	<ul style="list-style-type: none"> • Undertake design, analysis, resource assessment and management of RE technologies • Apply knowledge of mathematics, economics and engineering for comparative technology evaluation • Analyse and design energy policies • Prepare comprehensive technical reports and technical notes • Apply optimization methods to energy system planning and operation • Carry out feasibility analysis and due diligence of RE opportunities • Carry out energy audit for an entity and identify appropriate energy efficient alternatives
12	M.Tech (Urban Development & Management)	2011	<p>The graduates of the MTech (UDM) programme would be able to,</p> <ul style="list-style-type: none"> • Explore, understand and articulate the issues of urban development in the context of developing countries using multidisciplinary frameworks. • Collect city specific information using appropriate qualitative and quantitative methods through fieldwork and stakeholder participation. • Utilise statistical, financial and geoinformation tools for analysing urban development issues, assess available solutions and provide innovative solutions. • Work with diverse teams within and beyond government functionaries towards creating relevant policy recommendations and solutions to pertinent urban issues.
13	M.Tech (Water Resource Engineering & Management)	2014	<ul style="list-style-type: none"> • Provide technological solutions to water resources related problems • Ability to benchmark social and economic performance of interventions in water sector. • Capability to simulate alternative “What-if” scenarios and identify appropriate interventions using modeling and geo-spatial technology

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14	LL.M.	2016	<ul style="list-style-type: none"> • Develop deep understanding of the legal framework governing the infrastructure sector • Analyze the issues pertaining to taxation, competition and other business laws underpinning the regulation of infrastructure projects • Understand the nuances of PPP projects, competitive bidding and project financing • Gain perspectives on the legal framework and ensuing reforms in the specific infrastructure sectors like telecommunication, electricity etc. • Develop and apply skills for undertaking quantitative and qualitative research to analyze data by undertaking project/dissertation • Gain hands-experience in identifying gaps in law and policy and ability to connect the theory with its practical implication
15	Ph.D in Natural Resource Management	2002	<p>At the successful completion of the Ph.D. programme, the researchers should be able to:</p> <ul style="list-style-type: none"> • Have an in-depth understanding and knowledge of the nuances of the problem being researched and the literature surrounding relevant to the topic. • Explore frontiers of fundamental, applied and interdisciplinary research as decided by the chosen field of study • Understand and apply scientific methods, tools and techniques to carry out high quality research work • Independently plan and execute original research with high ethical standards • Develop suitable communication and interpersonal skills, critical thinking and problem-solving attitude as appropriate for a Ph.D. student
16	Ph.D in Energy & Environment	2002	<p>After the completion, Ph.D. students should be able to:</p> <ul style="list-style-type: none"> • Develop an understanding of research, philosophy and domain knowledge for addressing current research problems and identifying emergent themes in the area of specialization. • Critically apply concepts, methods, and learning to address underlying queries in their discipline of research as well as imbibe the spirit of inquiry and solution-oriented ideas. • Engage in the research of impact in the fundamental discipline or an interdisciplinary research. • Understand and apply scientific methods, tools, and techniques to carry out high quality research work. • To have intellectual independence, creative scholarship and ingenuity in tackling and solving research problems. • Cultivate and demonstrate skills in articulating their research outputs in scientific writing, oral presentation and publishing the results of their research in conferences and journals of repute, maintaining high ethical standards in research and academia. • Demonstrate their skills and knowledge at conceptualizing, planning and executing research independently and/or in team that extends the existing horizons of interdisciplinary research/thematic
17	Ph.D in Business Sustainability	2002	<p>At the end of their PhD course, students should be able to:</p> <ul style="list-style-type: none"> • Explore newer frontiers of interdisciplinary teaching & research • Make significant contribution to the corporate world • Comprehend scientific methods and techniques of doctoral research • Develop effective collaboration with allied research partners & industries • Carry out individual research work with wider societal impact • Integrate ethical values in original scientific research • Independent planning and implementation of research

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18	Ph.D in Bioresources & Biotechnology	2002	<p>At the end of Ph.D. programme, the students should be able to:</p> <ul style="list-style-type: none"> • Have an in-depth understanding of the nuances of the problem being researched and the literature surrounding it • Explore frontiers of fundamental, applied and interdisciplinary research as decided by the chosen field of study • Understand and apply scientific methods, tools and techniques to carry out high quality research work • Independently plan and execute original research with high ethical standards • Develop suitable communication and interpersonal skills, critical thinking and problem-solving attitude as appropriate for a Ph.D. student
19	Ph.D in Water Science & Governance	2014	<p>At the successful completion of the Ph.D. programme, the researchers should be able to:</p> <ul style="list-style-type: none"> • Have an in-depth understanding and knowledge of the nuances of the problem being researched and the literature surrounding relevant to the topic. • Explore frontiers of fundamental, applied and interdisciplinary research as decided by the chosen field of study • Understand and apply scientific methods, tools and techniques to carry out high quality research work • Independently plan and execute original research with high ethical standards • Develop suitable communication and interpersonal skills, critical thinking and problem-solving attitude as appropriate for a Ph.D. student
20	Ph.D in Policy Studies	2002	<p>At the completion of the PhD programme, the scholar should be able to:</p> <ul style="list-style-type: none"> • Explore frontiers of fundamental, applied and interdisciplinary research and teaching under the broad domain of policy and sustainability studies. • Understand and apply scientific methods and techniques to carry out high quality/rigorous research work. • Independently plan, implement original research with high ethical standards. • Develop critical thinking and analytical skills. • Develop effective interpersonal and research communication skills with the ability to communicate to different stakeholders within their fields.
21	Ph.D in Legal Studies	2016	<p>At the end of the Ph.D. programme, the students should be able to:</p> <ul style="list-style-type: none"> • Have an in-depth understanding of the nuances of the problem being researched and the literature surrounding it • Explore frontiers of fundamental, applied, and interdisciplinary research as decided by the chosen field of study • Understand and apply scientific methods, tools and techniques to carry out high quality research work • Independently plan and execute original research with high ethical standards • Develop suitable communication and interpersonal skills, critical thinking and problem-solving attitude as appropriate for a Ph.D. student

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22	PG diploma (Public Policy & Sustainable Development)	2014	<p>The PP&SD programme offers a unique opportunity to understand public policy-making across sectors such as energy, environment, natural resources, social security and public finance. It assists the participants in experiential learning through the following factors;</p> <ul style="list-style-type: none"> • Identify problems and the scope for policy intervention • Build up strong analytical capabilities that help to evaluate when policy interventions are needed and also their necessary impacts • Gain an understanding of the normative basis of choice of policy objectives and trade-off • Analyse policy constraints, design of public institutions, and choice of policy instruments • Pragmatic assessment of unintended consequences of various policies • Facilitate formulation of processes of stakeholder consultations and debates
23	PG Diploma (Water Science & Governance)	2014	<p>The PG Diploma programme in WSG has the following outcomes:</p> <ul style="list-style-type: none"> • Develop an understanding of science, socio-economic, governance and institutional dimensions involved in water resources management. • Develop basic understanding of quantitative and qualitative statistical tools and GIS tools used for analysing water resources and associated issues. • Knowledge to estimate water use in agriculture, households, and industry and perform water audits. • Skill to conduct baseline study prior to implementing water-based projects.
24	PG diploma in Renewable Energy	2009	<ul style="list-style-type: none"> • Assess the potential of harnessing renewable energy resources • Identify appropriate renewable energy technology based on technical and financial parameters • Understand design and development stages involved in a renewable energy project • Analyze sectoral policies and regulations related to the renewable energy sector • Undertake techno-commercial analysis of a renewable energy project using software simulation tools
25	Advanced PG diploma in Renewable Energy	2009	<ul style="list-style-type: none"> • Assess the potential of harnessing renewable energy resources • Identify appropriate renewable energy technology based on technical and financial parameters • Understand design and development stages involved in a renewable energy project • Analyze sectoral policies and regulations related to the renewable energy sector • Undertake techno-commercial analysis of a renewable energy project using software simulation tools
26	Certificate (Water Science & Governance)	2014	<p>The PG certificate course in WSG has the following outcomes:</p> <ul style="list-style-type: none"> • Develop an understanding of science, socio-economic, governance and institutional dimensions involved in water resources management. • Develop basic understanding of quantitative statistical and GIS tool used for analysing water resources and associated issues.

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Course Code	Course Name	Learning Outcome	Link
RPR 271	Research Methodology	From the Assignment 1, the students will be able to conceptualize the research idea and initiate a process for carrying out independent research pertaining to any specific issue. From the Assignment 2, students will be enabled to write a full-fledged research proposal.	Link
RPR 275	Research and Publication Ethics	i. To have a positive disposition towards continued learning about research philosophy & ethics ii. To know Rules, Regulations, Issues, Options, and Scientific Resources of Research Ethics iii. To learn the culture of fairness, honesty and integrity in academic communications and to understand the purpose and value of ethical decision-making iv. Avoid wasteful and duplicate publications & encourage original contributions to advance Academic Research and Scholarship v. Acquiring knowledge & professional competence and expertise about Patents, Copyrights, and other forms of Intellectual Property Rights vi. To promote social good and prevent or mitigate societal hazards through innovative ideas, creativity and research advocacy	Link
RPB 177	Philosophy of Social Sciences	By the end of the course, students will: - be better equipped to deal with the complexity of the social world and with the different ways of studying it - be able to make conscious epistemological and methodological choices in their own doctoral research work - gain some clarity with respect to “scientific objectivity”	Link

Course Code	Course Name	Learning Outcome	Link
NRC 105	Concepts and Theories of Development	Upon completion of the course, students would be able to: • Get proper understanding of Sustainable Development and related issues • recognize the issues related to man-environment interactions and various established theoretical perspective • discuss environmental problems from an social perspective • apply theoretical knowledge into practice while dealing with contemporary environmental problems	Link
NRC 107	Climate lab	Able to read basic thermodynamic diagrams for few atmospheric phenomenon and extreme event - Students will be Able to relate connection between environmental pollution and climate change issues	Link
NRC 113	Applied mathematics	Understanding of basic concepts of mathematics applicable to climate science	
NRC 131	Basics of climate science	Upon completion of the course, students would be able to: - Understand that any change /variability we are observing today is not arbitrary, everything has scientific basis - Explain the workings of the climate systems and feedback mechanisms	Link
NRC 136	Earth system sciences	Upon completion of the course, students would be able to: - Understand the various components of the earth’s system and its interlinkages - Explain the workings of the earth’s system and feedback mechanism	Link
NRC 143	Basic course in economics	-Familiar with the basic concepts of Microeconomics and National Income Accounting --Able to apply basic concepts for more advanced courses in Economics that are relevant for Energy and Environment	Link
NRC 103	Basic computer programming	Upon completion of the course, students would be able to: Describe the major components in problem solving for a computer program.	Link

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		<p>Apply top-down concepts in algorithm design. Create flowcharts to illustrate program algorithm or process. Analyze and write pseudocode to illustrate compact and informal high-level descriptions of computer programming algorithms. Define variables, Loops and arrays used in program methodology. Implement input and output to access and process files. Describe and apply object-oriented programming methodology.</p>	
NRC 183	Energy: science, technology and policy	<p>By the end of this course, the student will be able to:</p> <ul style="list-style-type: none"> - Identify and distinguish between various renewable and non-renewable energy sources - Explain the physical principles governing energy transformations using correct terminology - Describe the main features of the Indian energy system - Understand of the role energy has played and continues to play in human development - Identify selected policy and regulation that are required for large scale deployment of renewable energy 	Link
NRC 185	Impacts of climate change	<p>Upon completion of the course, students would be able to:</p> <ul style="list-style-type: none"> - Have a profound view about causes of climate change and the impacts of advancing climate change on different systems and regions 	Link
NRC 122	Introduction to Climate Modelling	<p>After completion of this course students should be able to</p> <ul style="list-style-type: none"> • Exhibit basic conceptual understanding on climate science and its dynamics • Explain the basic differences of various modelling techniques and their usage • Understand the IPCC projections and working group reports • Use basic Linux scripting and programming. 	Link
NRC 132	Mitigation of Climate Change	<p>Upon completion of this course, a fully-engaged student will be able to:</p> <ul style="list-style-type: none"> • Understand Integrated assessment models • To calculate GHG emissions using different approaches • Use the scientific method to prepare regional or National inventory of GHGS • Demonstrate knowledge of the important policy instruments available nationally or internationally in mitigation 	Link
NRC 162	NRC 162 Climate change and disaster risk reduction	<ul style="list-style-type: none"> • To develop a sound understanding of disaster risk and related underlying factors, their impacts, • To appreciate and comprehend on approaches and measures of disaster management, preparedness and response, and related policies, law and methods • To know various pathways, tools and entry points for integrating CCA-DRR and sustainability concerns into developmental planning across sectors, national, sub-national and local plans and actions of DM 	Link
NRC 151	Ecosystems and Climate Change	<p>The students will be able to appreciate the inter-disciplinarily that is required for Studies related to impacts of climate change on different ecosystems and species.</p> <p>Students will learn tools and techniques related to climate change studies and its impacts on ecosystems and the present level of global and national initiatives to address the same.</p> <p>Students will develop an understanding on India preparedness to address impacts of climate change to ecosystems</p>	Link
NRC 184	Renewable Energy Technologies	<p>At the end of the course the student will be able to:</p> <ul style="list-style-type: none"> Identify appropriate RE technology for power generation Design and develop the power generation fixtures based on RE technologies Provide performance evaluation for RE plants 	Link
NRE 102	Seminar Course in Global Change	<p>Better developed perspective on global change and complex issues linked to the theme (Test 1 to 4)</p> <p>Students will be exposed to issues broader than the ones they will be studying as part of their curriculum (Test 1 to 4)</p>	Link
NRC	Climate	<p>After this course, students should have a profound view about climate</p>	Link

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135	Change Vulnerability and Adaptation	vulnerability of different systems under the current climate change regime, different adaptation possibilities and conflicts of implementation	
NRC 138	Climate Change and Water	After completion of this course students should be able to <ul style="list-style-type: none"> • Perform risk assessment and suggest necessary policy interventions at various levels to improve resilience • Design or modify water management plans as an adaptation to demand management in response to supply fluctuations in future 	Link
NRC 139	Climate Change and Public Health	At the end of the course, the students will be able to <ul style="list-style-type: none"> - Understand the global demographic and epidemiological shift and its linkages to public health - Understand climate change impact on health in the context of public health - Understand emerging cross-cutting issues to climate change and public health 	Link
NRC 142	Spatiotemporal Data Analysis	After completion of this course students should be able to <ul style="list-style-type: none"> • Critically analyze a time series data and provide important findings based on them. • Execute Geostatistics model on spatial data for spatial prediction • Critically analyze time series data for spatial and temporal autocorrelation and then apply appropriate spatio-temporal model 	Link
NRC 133	Aerosol Science	Upon successful completion of this course, students will gain a detailed and integrated knowledge of atmospheric aerosols and its effect on regional and global climate. Further they will also be able to critically understand and examine spatial and temporal variation of atmospheric aerosols and its interaction with cloud in the atmosphere.	Link
NRC 172	Advance Climate Modelling	<ul style="list-style-type: none"> • Developed understanding of dynamical processes in a model • Ability to port and run a simple model • Ability to distinguish between different climate data operators • Application of modelling outputs towards extreme climate analysis 	Link
NRC 186	Energy Systems Modelling	After completing this course students will be able to Evaluate options for energy supply, distribution and utilisation (Test 1) Understand the role of long term energy-economic- environment modelling in the planning process (Test 1) Understand important outputs of bottom-up energy-economic- environment modelling outputs in terms of their economic implications (Test 2 and Assignment 1) Define and understand linkages between energy and climate change from an energy planning perspective (Test 2, Test 3 and tutorials) Understand and evaluate different scenarios of energy demand and supply with implications on energy policy thereof. (Test 3)	Link
NRC 145	Economics of Climate Change	<ul style="list-style-type: none"> • To introduce the students to economic analysis of climate change • To examine the economic instruments at global, regional and local levels for making policy choices related to climate change • To analyze the economic principles in work at Institutional Mechanisms devised to deal with climate change problems 	Link
NRC 141	Governance and Climate Change	<p>Able to critically appraise climate policy problems and proposals at global, national, state, and sectoral level (Test 2 and Test 3)</p> <p>Able to independently problematize and frame climate policy questions and design appropriate governance response (Test 1 and Test 2)</p> <p>Able to appreciate theoretical and ideological underpinnings, as well as material drivers of different views on climate policy and governance (Test 1)</p> <p>Able to appreciate positions of different interest groups/stakeholders/actors and reason about inclusion/exclusion of certain actors and stakeholders in a particular policy making process, policy design, and governance structure (Test 1-3)</p>	Link
NRE 115	Environmental statistics	After completing this course the students will be able to <ul style="list-style-type: none"> - develop an intuitive statistical sense - analyse, model and quantify uncertainty -extract information and draw scientific inference from large amount of 	Link

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		data collected to solve environmental problems take informed decisions under uncertainty	
NRE 113	Applied Mathematics	<ul style="list-style-type: none"> Analyse problems in the said mathematical domains Formulate problems and it's solution in the said mathematical domains Establish a prospective and retrospective conceptual and application level connect between the said mathematical domains and their area of study 	Link
NRE 121	Ecology	<p>Upon completion of this course, a fully-engaged student will be able to:</p> <ul style="list-style-type: none"> Define important scientific/ecological terms. Describe important ecological processes Use the scientific method to design an ecological study in the lab and/or field. Demonstrate knowledge of the important ecological principles operating at different levels of organization 	Link
NRE 131	Environmental Chemistry and Microbiology	<ul style="list-style-type: none"> The students will learn basic chemical contents in the context of environmental studies Students will understand the theory behind the analytical techniques Students will learn the conceptual skills required for environmental chemistry research 	Link
NRE 138	Environmental Monitoring Laboratory	<ul style="list-style-type: none"> Students will be trained in analytical and conceptual skills required for environmental chemistry research. Students will be able to correlate environmental impacts and field processes 	Link
NRE 139	Environmental Geosciences	<p>Demonstrate knowledge of fundamental geological processes (Test 1) • Identify contemporary environmental problems and their drivers including anthropogenic activities. (Test 2) • Apply geosciences knowledge in solving environmental issues (Test 3) • Able to systematically apply the knowledge on earth's system in analyzing environmental issues. (Assignment)</p>	Link
NRE 155	Environmental law and policy	<ul style="list-style-type: none"> be familiar with the laws, policies and institutions in the field of environment acquire the skills needed for interpreting laws, policies and judicial decisions in a holistic perspective acquire the ability to evaluate the role of law and policy in conservation and management of natural resources and prevention of pollution 	Link
NRE 165	Introduction to Sustainable Development	<ul style="list-style-type: none"> The students will have a “generalist” development practitioner’s perspective towards environmental management. The students will have fairly good understanding of the current debates around concepts of sustainable development and practices 	Link
NRE 173	Research Methodology and Thesis Writing	<ul style="list-style-type: none"> Students should be able to identify a research problem stated in a study and define it. Students should be able to distinguish a purpose statement, a research question or hypothesis, and a research objective Students should be familiar with the steps involved in identifying and selecting a good instrument to use in a study 	Link
NRE 106	Communication skills and technical writing	<ul style="list-style-type: none"> Demonstrate critical, thinking, reading and analytical skills, including understanding an argument's major assertions and assumptions, and how to evaluate its supporting evidence. Demonstrate the fundamentals of persuasion, as they are adapted with respect to audiences in academic writing, business writing and professional writing. To enable students to write clear, well-structured academic texts, proposals of some length, with a high degree of grammatical accuracy and in an appropriate style To enable students to use an appropriately range of argument types and demonstrate a good command of both general and specialised vocabulary. To edit one's own and colleagues' texts, improving them stylistically and grammatically. 	Link

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		<ul style="list-style-type: none"> • Demonstrate a connection between writing and thinking and use writing and reading for inquiry, learning, thinking, and communicating. • Demonstrate appropriate verbal and nonverbal skills in formal and semi-formal setting in a professional space 	
NRE 123	Biodiversity Assessment and Conservation	<ul style="list-style-type: none"> • Students are able to interpret ecological and social phenomena from a biodiversity view point • Students are able to implement small research project in the field of biodiversity • Students are able to understand scientific literature • Students have good communication skills 	Link
NRE 134	Air Quality Management	<ul style="list-style-type: none"> • After attending the course the students shall have acquired knowledge and understanding to evaluate air quality management and analyze the causes and effects of air pollution. • Students would be able to understand the type and nature of air pollutants, the behavior of plumes and relevant meteorological determinants influencing the dispersion of air pollutants. • The basic understanding of methods available for controlling point, line and area sources and first-hand experience of using most widely used air quality models such as AERMOD 	Link
NRE 141	Basic Course in Environmental and Resource Economics	NA	Link
NRE 142	Water Quality Management	<ul style="list-style-type: none"> • After completion of the course, students will have knowledge of basic rationale of water quality management. They will be able to operate, manage and troubleshoot problems of municipal and industrial water and wastewater treatment plants 	Link
NRE 144	Environmental Health and Risk Assessment	<ul style="list-style-type: none"> • After attending the course students shall have gained knowledge and understanding of the methods and processes employed in environmental health and risk assessment. • The students shall also have gained a professional attitude in the interpretation of epidemiological and toxicological studies for use in environmental health and risk assessment. <ul style="list-style-type: none"> o To understand key principles of environmental health risk characterisation o Should be able to assess risk due to carcinogens, analyse various methods of risk assessment o Should be able to understand exposure modelling, point estimate and probability modelling 	Link
NRE 162	Hydrology	<ul style="list-style-type: none"> • Ability to estimate flood peaks, fix capacity reservoir of reservoirs • Ability to quantify rainfall data, estimate return period of extreme rainfall events • Prepare to take up advanced courses in water resources in future semesters 	Link
NRE 172	Principles of Geoinformatics	<ul style="list-style-type: none"> • Basic principles of geoinformatics • Importance of spatial thinking • Usage of spatial dataset 	Link
NRE 189	Solid and Hazardous Waste Management	<ul style="list-style-type: none"> • After completion of the course students should be able to-do sampling and characterization of solid waste; analysis of hazardous waste constituents including QA/QC issues; understand health and environmental issues related to solid waste management; apply steps in solid waste management-waste reduction at source, collection techniques, materials and resource recovery/recycling, transport, optimization of solid waste transport, treatment and disposal techniques; economics of the onsite vs. offsite waste management options 	Link
NRE 112	Multivariate Data Analysis	<ul style="list-style-type: none"> § distinguish between dependence and interdependence methods in multivariate data analysis § identify the most appropriate statistical techniques for a multivariate dataset § carry out and apply commonly used multivariate data analysis 	Link

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		techniques, and interpret results § use statistical software packages for the analysis of multivariate data	
NRE 129	Industrial Ecology	NA	
NRE 133	Environmental Management System	After attending the course the students would be <ul style="list-style-type: none"> • acquainted with the environmental management system and its benefits • able to identify and review audit-related documentation, prepare checklists and audit process • able to apply tools such life cycle assessment, environmental audits, evaluation of environmental performance for environmental decision-making • to evaluate the effectiveness of systematic EMS monitoring processes. 	Link
NRE 145	Integrated Impact Assessment	<ul style="list-style-type: none"> • After attending the course the students shall have acquired knowledge to conduct integrated impact assessment, so that they are able to identify sustainable modes of environmental operation. • Students would be able to understand the key elements of EIA and its processes by which they can apply to relevant projects. • Able to understand various tools and techniques used in identification and analysis of impacts suggest appropriate mitigation measures and prepare environmental management plans 	Link
NRE 149	Governance and Management of Natural Resources	<ul style="list-style-type: none"> • Students will gain an overview of key concepts, theories and analytical frameworks related to natural resource governance. • They will be able to critically evaluate governance approaches in different ecological contexts from a variety of perspectives. • They will be able to explain the relevance of various models of governance to particular issues in different cases • They will be able to carry out interdisciplinary research and evaluate various natural resource based interventions for its social, institutional, ecological and economic outcomes 	Link
NRE 151	Wildlife Conservation and Management	NA	Link
NRE 163	Groundwater Hydrology and Management	<ul style="list-style-type: none"> • Interpretation of groundwater field data, identify pollutants, saline water intrusion • Ability to conduct surface and sub-surface investigations of groundwater using latest technology and methods available • Would be equipped to decide on conjunctive water use, including ability to identify competing water demands, allot ground water usage according to yield of existing aquifer 	Link
NRE 136	Glacier hydrology	An understanding on interdisciplinary aspects of high altitude research. An understanding about the tools and techniques to conduct research on glaciers An exposure to glacier environment	Link
NRE 174	Water and Wastewater Treatment Processes and Design	On completion of the course, students should be able to design treatment processes for various criteria pollutants, be able to decide suitable methods for treating these wastes under Indian conditions and methods for waste reduction, recycling and reuse of industrial wastewater	Link
NRE 167	Integrated Watershed Management	<ul style="list-style-type: none"> • Suggest technical measures for soil erosion control both due to water and wind • Assess the current status of the watershed at field, by taking up accurate investigation measures and conduct survey • Suggest drought control measures, water conservation structures, including design 	Link
NRE 168	Food Security and Agriculture	<ul style="list-style-type: none"> • A good understanding of inter-relationship between climate change, environment, food security and sustainability at global and regional (India) level. • To understand the concept of food security and issues in achieving it. 	Link

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		<ul style="list-style-type: none"> • Understand ways of adapting to climate change and managing the environment keeping in mind food security and sustainability 	
NRE 171	Environmental Modeling	<ul style="list-style-type: none"> • develop models based on the mass-balance approach • predict the impact of the of external waste loading on different environmental matrices • predict and generate future conditions under various loading scenarios or management/intervention action alternatives 	Link
NRE 175	Geoinformatics for Resource Management	<ul style="list-style-type: none"> • Theoretical and practical experience of digital image processing • Knowledge to analyze spatial data • Gained practical skill to apply basic remote sensing and GIS skills for natural resource management 	Link
NRE 147	Environmental Economics	<p>After taking the course, the students will be able</p> <ul style="list-style-type: none"> • To understand basic economic concepts such as externalities, private and social costs, market failure and how environmental goods differ from private goods. • To learn current methodologies used in the valuation of environmental goods and services including cost benefit analysis and non-market valuation. • To understand the role of government and different instruments of environmental policy. • To understand the interlinkages between trade and environment as well as economic aspects of global environmental issues • To summarize, present and convey the key trade offs involved in the current environmental issues, especially their economics aspects 	Link
NRE 178	Satellite Meteorology	<ul style="list-style-type: none"> • Operational and future satellite missions for atmospheric and meteorological parameters • How satellite images are acquired and interpreted for meteorological applications and weather forecasting • How atmospheric and meteorological parameters are retrieved and utilized for studying meteorological and atmospheric processes 	Link
NRE 130	Soil Science	<p>Physico-chemical, mineralogical and biological properties of soil (Test 1 and Test 3)</p> <p>Understanding of soil remediation techniques and basic principles involved (Test 2)</p> <p>Biological processes occurring in soil (Test 2 and Test 3)</p>	Link
NRE 114	Advanced Analytical Techniques for Environmental Application	<p>To be able to handle appropriate instrumental methods for analysis. Familiarity with working principals, tools and techniques of analytical techniques.</p> <p>To understand the strengths, limitations and creative use of techniques for problem-solving.</p>	Link
NRE 170	Advanced Geosciences	<p>The student will gain understanding of earth's interior and surface processes (Test 1)</p> <p>Understand the earth's geological processes (Test 2)</p> <p>Gain understanding techniques to gather geological information (Test 3 and assignment)</p>	Link
MEU 173	Stochastic modelling	<p>On successful completion of this course the students will be able to:</p> <ul style="list-style-type: none"> • distinguish between a deterministic and stochastic process and situations under which the statistical • methods are to be applied • develop an intuitive statistical sense • analyse, model and quantify uncertainty • extract information and draw scientific inference from the data to solve problems related to urban development and water resources • develop probabilistic models for predicting outcomes of stochastic processes • apply the concepts of inferential and to take informed decisions under conditions of uncertainty 	Link
MEU 161	Theories of Urbanisation	<p>On successful completion of this course the students will be able to:</p> <ul style="list-style-type: none"> • Have a good understanding of the theories that explain the process of urbanization, urban patterns, structures of cities, various phenomena underlying urban development and the outcomes of urbanization 	Link

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		<ul style="list-style-type: none"> • The course will provide the contextual framework in which the students will be able to place the leanings from the other courses of the programme 	
MEU 163	Sustainable Provision and Management of Urban Services	<p>On successfully completing this course the students will be able to:</p> <ul style="list-style-type: none"> • Gain exposure to the key management issues on challenges in the provision of urban services such as water supply, sewerage, solid waste, transport, energy and buildings • Enhance knowledge and understanding of the multi-dimensional and complex systems relating to delivery of and ways to manage urban services in a sustainable manner 	Link
MEU 123	Urban Finance	<p>On completion of this course, the students would:</p> <ul style="list-style-type: none"> • Understand the various aspects of municipal finances, revenues, services, expenditure and municipal budgeting • Assess the fiscal health of municipalities and parastatals <p>Evaluate alternative financing options. 4. Learn ways to manage municipal assets</p>	Link
MEU 143	Urban Governance	<p>On successful completion of this course, students will be able to:</p> <ol style="list-style-type: none"> 1. Understand the various aspects of urban governance and the role of law and policy therein. 2. Have a basic understanding of legal processes and documents and how to read them. 3. Appreciate the role played by socio-political processes in the implementation of law and policy. 4. Evaluate the functioning of laws, policies and institutions of urban governance from the perspective of democratic governance and other constitutional values. 5. Understand the need for reforms in urban governance and the steps taken in this direction 	Link
MEU 167	Urban Development Policies and Programmes	<p>On completion of this course, the students will be able to:</p> <ul style="list-style-type: none"> • Have a good understanding of the processes, goals and contents of various urban development policies and programmes in India • Analyse the various provisions of the policies and the programmes and institutional mechanisms developed to implement the policies 	Link
MEU 121	Urban Ecology and Environment	<p>On completion of this course, the students would:</p> <ul style="list-style-type: none"> • Gain a wider understanding of urban ecological and environmental issues ranging from bio-diversity to climate resilience and appreciate potential approaches for cities to deal with ecological and environmental challenges and threats of climate change • Enhance abilities and skills relating to evaluation of environmental and social impacts of urban development 	Link
MEU 152	City and Regional Planning and Management	<p>On completion of this course, the students would:</p> <ul style="list-style-type: none"> • Have acquired an understanding of the concept and theoretical background of planning for region, city and urban subsystems. • Be able to associate / integrate the relevance of different planning subsystems for better management of cities and regions. • Be able to demonstrate their learning about the city and regional planning as a tool for management processes for urban development. • Be able to comprehend cross cutting issues in city and regional planning and management 	Link
MEU 172	Geoinformatics for Urban Development	<p>On completion of this course, the students would be able to map urban components and dynamics such as land use, undertake hotspot analysis etc.</p>	Link
MEU 184	Real Estate Development	<p>On completion of this course, the students would:</p> <ul style="list-style-type: none"> • Gain a comprehensive understanding of the real estate sector in India • Acquire the knowledge about the policies, laws and processes involved in the development and management of real estate sector 	Link
MEU 154	Regeneration and City Competitiveness	<p>On completion of this course, the students would be able to</p> <ul style="list-style-type: none"> • Acquire knowledge and understanding of the phenomenon of city competitiveness and linkages to regeneration and sustainability • Advance the knowledge further by developing a framework and 	Link

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		examining measures to make cities in India competitive	
MEU 176	Research Methodology	On completion of this course, the students would: <ul style="list-style-type: none"> • Carry out independent research • Be able to formulate research designs depending upon the problems they choose to study, and think systematically and cogently • Research will become a part of their learning experiences d) Be able to reflect upon the entire process 	Link
MEU 183	Urban systems modelling	On successfully completing this course the students will be able to: <ul style="list-style-type: none"> • Quantify interactions between drivers and sub-systems of urban system • Anticipate impact of alternate development strategies on futures • Develop models and simulations for urban systems 	Link
MEU 162	Urban Disaster Management and Climate Resilient Cities	On successful completion of this course, the students would be: <ul style="list-style-type: none"> • Equipped with knowledge on disaster risk reduction and climate resilience in cities • Be able to apply the tools and techniques used for vulnerability and risk assessment 	Link
MEU 112	Energy efficient buildings	On completion of this course, the students would: <ul style="list-style-type: none"> • Have acquired an understanding of the concept and theoretical background of low energy building design • Be able to demonstrate their learning about use of simulation tools to achieve energy efficiency 	Link
MEU 144	Sustainable Urban Transport	On successfully completing this course the students will be able to: <ul style="list-style-type: none"> • Understand the impact of alternate transport infrastructure improvement strategies on society and environment • Identify key variables that influence travel choices and behaviour • Assess infrastructure quality and define strategies to achieve sustainable transport/mobility 	Link
MEU 168	Urban housing policy and practice	On completion of this course, the students would: <ul style="list-style-type: none"> • Identify key concepts of housing studies and frameworks behind housing policy formation. • Acquire thorough knowledge of variety of housing interventions and multiplicity of possible approaches for solving the housing question. • Learn essentials of managing a slum/housing redevelopment exercise 	Link
MEU 175	Introduction to Geographic Information System (GIS)	Upon completion of this course, a fully engaged student will be able to: <ul style="list-style-type: none"> Know the basic concepts in GIS Work with basic tools in GIS software Understand and manage spatial information Apply GIS tools and techniques in related applications 	Link
MEU 178	Urban Water Supply and Waste Water	On completion of this course, the students would: <ol style="list-style-type: none"> Have acquired an understanding of the institutional mechanisms in the delivery of the two services, water supply and waste water disposal. Have developed understanding the challenges of the delivery of these services as well as the strategies to address the challenges. 	Link

Course code	Course name	Learning Outcome	Link
MPL 101	Seminar/ clinic on contemporary issues in infrastructure and environment	By the end of the course, the students will: <ol style="list-style-type: none"> 1. Upgrade in skills that are required for a lawyer and a legal academic. 2. Develop logical thinking on contemporary issues concerning the society 	Link
MPL 103	Dissertation	On completion of this course, the students would be able to: <ol style="list-style-type: none"> 1. Identify the research gaps, and 2. Conduct a review of the literature 3. Structure and design a research proposal 	Link

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		<p>4. Learn about different research methods</p> <p>5. Use a recognised legal citation style</p> <p>6. Undertake a critical study of on a legal issue</p>	
MPL 141	Economic foundations of environmental and infrastructure law	<p>On completion of this course, the students would:</p> <ol style="list-style-type: none"> 1. Have acquired an understanding of the concept and theoretical background of laws related to infrastructure and natural resources. 2. Have developed critical thinking on possibilities and challenges in balancing the interests of various stakeholders in these areas. 	Link
MPL 151	Comparative public law/systems of governance	<p>On completion of this course, the students would:</p> <ol style="list-style-type: none"> 1. Be able to understand the similarities and differences between leading legal traditions in key areas like separation of powers, protection of rights and the role of judiciary 2. Be familiar with the methodology of comparative public law 3. Be able to use comparative methodology in public law analysis 	Link
MPL 153	Law and justice in globalizing world	<p>On completion of this course, the students would:</p> <ol style="list-style-type: none"> 1. Have acquired an understanding of the concept and theoretical background of globalization, and global justice. 2. Have developed critical thinking on the process of globalization and its impact on international and municipal law and on institutions. 	Link
MPL 155	Environmental law and policy	<p>On completion of this course, the students would:</p> <ol style="list-style-type: none"> 1. Have a strong foundation to undertake specialised courses in the field of environmental laws and policy 2. Develop an interdisciplinary approach to the issues relating to the environment. 	Link
MPL 157	Infrastructure law and policy	<p>On completion of this course, the students would:</p> <ol style="list-style-type: none"> 1. Have a strong foundation in infrastructure laws to undertake advanced courses in the field 2. Be conversant with the relevant laws, policies, judicial pronouncement, and reforms in the field. 	Link
MPL 173	Research methods and legal writing	<p>On completion of this course, the students would:</p> <ol style="list-style-type: none"> 1. Carry out independent research pertaining to any specific legal issue 2. Design a research, justifying use of various methods/tools to carry out the same 3. Collect, analyse and interpret both quantitative and qualitative data 	Link
MPL 102	Seminar/clinic on contemporary issues in infrastructure and environment - II	<p>By the end of the course, the students will:</p> <ol style="list-style-type: none"> 1. Upgrade in skills that are required for a lawyer and a legal academic. 2. Develop logical thinking on contemporary issues concerning the society 	Link
MPL 104	Dissertation 2	<p>On completion of this course, the students would be able to:</p> <ol style="list-style-type: none"> 1. Collect data, analyse them, and answer the research questions 2. Perform multidisciplinary research 3. Write research papers in law 4. Edit a research paper in law and proofread them, and 5. Publish their research effectively 	Link
MPL 134	Climate change and law	<p>By the end of the course, it is expected that the students will:</p> <ol style="list-style-type: none"> 1. Be familiar with the international legal regime on climate change. 2. Be able to appreciate the concerns raised on the ground of equity and the negotiating position of developing countries. 	Link
MPL 142	Business and taxation laws in infrastructure projects	<p>By the end of the course, it is expected that the students will:</p> <ol style="list-style-type: none"> 1. Be able to grasp the nature of and forms of companies incorporated and competition issues in the infrastructure sector 2. Be able to analyse various taxation laws applicable to the infrastructure sector. 3. Have a comprehensive understanding of how firms operating in the specific infrastructure sectors are legally organised and 	Link

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		managed.	
MPL 144	Contracts law and management	By the end of the course, it is expected that the students will: 1. Be able to understand implications of infrastructure contracts. 2. Be able to critically analyse contracts and make constructive amendments. 3. Be able to understand the management of contracts and the resolution of disputes.	Link
MPL 146	Infrastructure project finance law	At the end of the course it is expected that the students will: 1. Understand the legal basis and methods for project financing of infrastructure projects in India. 2. Gain knowledge and understanding of international project finance methodologies and issues, as relevant in the Indian context. 3. Understand the role of various players involved in a project finance transaction, the unique risks of a project finance transaction and ways and means to address such risk through the project finance documentation. 4. Apply the knowledge gained in professional practice.	Link
MPL 148	Legal aspects of bidding and public private partnership	By the end of the course, it is expected that the students will be: 1. Able to understand legal issues related to competitive bidding & PPP projects 2. Appreciate business and regulatory risks related to PPP and infrastructure projects	Link
MPL 152	International environmental laws	By the end of the course, it is expected that the students will be able to: 1. Appreciate the relevance and importance of international legal instruments in addressing global environmental concerns. 2. Critique IEL from a developing country perspective. 3. Be familiar with the dispute settlement mechanisms used to settle international environmental disputes	Link
MPL 154	Mining and mineral laws	The course will provide the students: 1. familiarity with the normative legal framework on mining in India 2. the ability to appreciate policy-shifts and policy-decisions on mining in India 3. knowledge on dispute settlement in the mining sector and ability to imagine dispute avoidance in the sector 4. ability to understand externalities cost and propose solutions, particularly in the context externalities of mining like environmental damage and threat to the life and livelihood of tribal population	Link
MPL 156	Environmental aspects of business activities	By the end of the course, it is expected that the students will be able to: 1. Identify various environmental issues involved in business operations and be in a position to prepare client briefs. 2. Spell out various compliance requirements under environmental laws and advise clients accordingly.	Link
MPL 158	Forest Law and policy	By the end of the course, it is expected that the students will: 1. Be able to critically analyse the forest laws and policies both at the national and international level. 2. Be able to contribute to the debates and literature on the subject in the form of articles and comments.	Link
MPL	Energy law	By the end of the course, it is expected that the students will be:	Link

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159		<ol style="list-style-type: none"> 1. Able to understand specific sectoral legal issues and the nature of energy business 2. Appreciate the critical legal issues relating to energy, environment and society 	
MPL 161	Telecommunication law	<p>By the end of the course, it is expected that the students will be:</p> <ol style="list-style-type: none"> 1. Able to familiarise with the legal framework for telecommunications in India. 2. Able to effectively resolve the problems/disputes in the area of telecommunication sector in India. 	Link
MPL 162	Biotechnology law	<p>By the end of the course, it is expected that the students will:</p> <ol style="list-style-type: none"> 1. Be able to appreciate different approaches to biotechnology regulation. 2. Be familiar with the biotechnology regulatory regime in India. 3. Have an understanding of the IPR issues in the sector. 	Link
MPL 163	Electricity law, reforms and practice	<p>By the end of the course, it is expected that the students will be:</p> <ol style="list-style-type: none"> 1. Able to understand specific sectoral legal issues and the regulatory challenges of electricity business 2. Appreciate the critical legal and regulatory issues relating to electricity, business and society 	Link
MPL 166	Urban infrastructure law and management	<p>By the end of the course, it is expected that the students will:</p> <ol style="list-style-type: none"> 1. Be able to appreciate the problems facing urban infrastructure sector and the various policy responses at the national level. 2. Be able to make contributions in the form of articles, comments etc. analysing and suggesting reforms in the sector. 	Link
MPL 165	Competition law and policy	<p>By the end of the course, it is expected that the students would have:</p> <ol style="list-style-type: none"> 1. Acquired a critical understanding of competition law and its impact on developing countries like India 2. Acquired the skills to contribute to the academic literature on competition law in the form of position papers, review articles etc. 	Link
WSW 132	Water resource law	<p>By the end of the course, it is expected that the students will:</p> <ol style="list-style-type: none"> 1. Demonstrate the ability to understand the existing legislative and policy framework governing the water sector and recognition of various rights associated with water. 2. Be able to critically appreciate and practically analyse various water laws and policies in thye national and International level. 	Link

Course code	Course name	Learning Outcome	Link
WSW 161	Water and Sustainability Science	<p>By the end of the course, students will:</p> <ol style="list-style-type: none"> 1. Have a clearer idea of what “sustainability science” is. 2. Command a critical understanding of some of the key related concepts. 3. Be able to deal with the fact that “sustainability science” is not a unified theory but a panoply of approaches with various value premises depending on the stakeholders involved. 4. Have a broader view on the future possibilities leading to more sustainability. 	Link
WSW 153	Water Law	<p>By the end of the course, it is expected that the students will:</p> <ol style="list-style-type: none"> 1. Demonstrate the ability to understand key concepts in water law 2. Be able to critically appreciate and practically analyse various water laws and policies in India and South Asia 	Link

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WSW 141	Water quality monitoring and assessment	<ol style="list-style-type: none"> 1. Understand meaning of important parameters for measuring water quality; 2. Water quality criteria and standards, and their relation to public health, environment and urban water cycle 3. Learn how to run accurate water quality tests and to determine how the parameters relate to each other 4. Plan water quality surveillance for a given aquatic environment and to understand what a test result means in terms of the health of the ecosystem. 	Link
WSW 163	Gender, rights, and equity perspectives for sustainable water management	<p>By the end of the course students will:</p> <ol style="list-style-type: none"> 1. Have a critical understanding of concept of gender, rights and equity and salience of these perspectives for sustainable water management 2. Be able to recognise various strategies of gendering narratives and its limitations 	Link
WSW 111	Statistical methods in water resources	<ol style="list-style-type: none"> 1. Distinguish between a deterministic and stochastic process and situations under which the statistical methods are to be applied 2. Develop an intuitive statistical sense 3. Analyse, model and quantify uncertainty 4. Extract information and draw scientific inference from the data to solve problems related to water resources 5. Develop probabilistic models for predicting outcomes of stochastic processes related to water resources 6. Apply the concepts of inferential and to take informed decisions under conditions of uncertainty 	Link
WSW 143	Water resources- Institutions and governance	<p>At the end of the course, students would:</p> <ol style="list-style-type: none"> 1. Have the ability to understand the reasons for contestation over water resources, its management and governance 2. Be able to understand, analyse issues regarding water governance and reforms in India taking into account social, economic and environmental parameters 3. Be able to articulate the contemporary challenges that the water sector in India faces 	Link
WSW 165	Water resource systems and interactions	<ol style="list-style-type: none"> 1. Describe the major components of the hydrological cycle, and understand the interactions within the system and across 2. Predict for a given water resource system various processes and how these processes are dynamically linked with aquatic ecosystems as well as with human activities 3. Explain the key concepts for integrated, multidisciplinary and interdisciplinary analyses of water resources; 4. Reckon value of water for various uses and users and explain how these concepts can be used in water resources planning at various spatial and temporal scales. 	Link
WSW 151	Water planning and management	<ol style="list-style-type: none"> 1. Students by the end of the course will be aware of policies and strategies involved in planning and management of developed water resources, their conservation, control and protection. 2. They will understand that water management must be dynamic to respond to changing needs and objectives and try account for vagaries of nature. 3. Water planning and management are key to improve the quality of river basins, lakes, wetlands, in fact all water bodies and riparian areas. Modification of human activities is a must for sustainable use of water. 4. The knowledge base gained during this course can be used for multi-disciplinary projects involving water science. 	Link
WSW 172	Geo-informatics for water resources	Upon completion of this course, a fully-engaged student will be able to understand the fundamentals of geoinformatics water resources studies	Link
WSW 167	Applied hydrology & meteorology	<ol style="list-style-type: none"> 1. Students will be capable of performing spatial and temporal analysis of rainfall and runoff data at all scales of planning and 	Link

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		<p>management involving watersheds and river basins.</p> <ol style="list-style-type: none"> Students will be to assess drought situations, flood scenarios and normal flows in streams and catchments using the skills developed during this course Real life field application challenges like differences in urban and rural hydrologic processes due to human intervention can be identified and inputs can be provided for design of hydraulic structures 	
WSW 145	Water quality monitoring and analysis	<ol style="list-style-type: none"> Understand meaning of important parameters for measuring water quality; Water quality criteria and standards, and their relation to public health, environment and urban water cycle; Learn how to run accurate water quality tests and to determine how the parameters relate to each other; Plan water quality surveillance for a given aquatic environment and to understand what a test result means in terms of the health of the ecosystem. 	Link
WSW 181	Water planning and management	<ol style="list-style-type: none"> Students by the end of the course will be aware of evolution in planning and management process for water resources as envisaged and formulated by the state on the advice of Planning Commission. They will understand the evolution of water planning from the development phase to strategic planning phase, the need for sustainable economic development of water, assessment of coping strategies for disaster management. They will be able to evaluate alternate water management strategies and suggest methods to protect ecologically sensitive areas. They will develop an understanding of water use allocation. 	Link
WSW 131	Hydraulics	<ol style="list-style-type: none"> Solve the problems related to properties of fluids. Apply the concepts of fluid statics and dynamics. Apply the concepts of flow measurement Solve the problems related to flow through pipes and channels. Solve the problems based on flow through weirs, notches and orifices 	Link
WSW 103	Field Trip 1	<ol style="list-style-type: none"> Students understand the various factors to be considered in a water management project. Students learn to appreciate the state-of-the-art technologies in water and disaster management. Students get exposed to live projects through field level data collection, methodology formulation and analysis. Students are equipped to take up dynamic challenges in the field as water professionals 	Link
WSW 132	Industrial pollution control	<ol style="list-style-type: none"> Analyse and industrial activity and identify the environmental problems Plan strategies to control and reduce pollution Select the most appropriate technique to control and treat industrial pollution Apply environmental management systems (EMS) to an industrial activity 	Link
WSW 177	Social, economic and health dimensions of water, sanitation and hygiene	<p>At the end of the course, the students will be able to</p> <ol style="list-style-type: none"> Explain the linkages between WASH and various socio-economic aspects Understand the global and regional issues of WASH and health Develop analytical skill to analyse WASH related issues Assess the right-based approach of WASH in larger policy framework Perform economic analysis of WASH issues 	Link
WSW	Project work 1	<ol style="list-style-type: none"> Student develops an understanding of real time 	Link

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102		<p>problems/challenges in water resources governance and management projects and their alignment with the government programmes.</p> <ol style="list-style-type: none"> 2. Student learns to apply research methods and different statistical tools in real-time research projects. 3. Student learns and applies relevant scientific methods and techniques (statistical, numerical and/or geospatial) in problem-solving. 4. Student is trained to effectively communicate and demonstrate the learning through structured thesis/dissertation and oral presentation. 	
WSW 106	Project work report	<ol style="list-style-type: none"> 1. Student develops an understanding of real time problems/challenges in water resources governance and management projects and their alignment with the government programmes. 2. Student learns to apply research methods and different statistical tools in real-time research projects. 3. Student learns and applies relevant scientific methods and techniques (statistical, numerical and/or geospatial) in problem-solving. 4. Student is trained to effectively communicate and demonstrate the learning through structured thesis/dissertation and oral presentation 	Link
WSW 182	Water security and conflict management	<ol style="list-style-type: none"> 1. Develop understanding of concepts and issues related to water security and conflicts. 2. Learn approaches to and frameworks for conflict resolution. 3. Appreciate how hydro diplomacy is used as a tool for cooperation. 4. Understand intersectionality and how it plays a role in conflict resolution 	Link
WSW 122	Water economics and financial management	<ol style="list-style-type: none"> 1. Understand the importance of an economics perspective on water and its management 2. Apply economic concepts to understanding, designing, and evaluating water projects and policies 3. Distinguish between economic and financial approaches to water resources management and discern the relevance and need for each 4. Appreciate the varied and inter-disciplinary nature of water management and be able to interact with professionals in various water management positions 	Link
WSW 142	Traditional knowledge and water management	<p>By the end of the course, students will:</p> <ol style="list-style-type: none"> 1. Understand the salience of various dimensions of knowledge and its relevance for water management. 2. Appreciate the need to go beyond binaries and articulate the need for greater synergies between two knowledge systems and bridging the science-management divide. 3. Be familiar with the concept and need for use of traditional knowledge for adaptive water management. 4. Be aware of traditional practices of water management in South Asia, especially India and also understand why these practices did not sustain, i.e. an insight into the institutional processes that are key to understanding management issues. 	Link
WSW 152	Water disasters: Management and planning	<p>By the end of the course students will:</p> <ol style="list-style-type: none"> 1. Have an understanding of disaster management practices and policies. 2. Be able to recognise actions in situations of disasters. 3. Be able of comprehend plans to minimise the impacts of various disasters. 	Link
WSW 168	Wetland conservation and	Students undertaking this course will develop an understanding of values and functioning of Wetland Ecosystems and different	Link

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	management	aspects of Wetland management planning that will aid governance. Will be useful to students aspiring higher studies and career paths that involves assessment of aquatic biodiversity and governance of Wetland management	
WSW 124	Water audit and demand management	<ol style="list-style-type: none"> 1. Students will be introduced to latest water audit methods in various sectors. 2. Students will be able to assess water demands and with knowledge of water loss quantification will be able identify the additional water quantity which may be used gainfully. 3. Ability to determine/quantify water losses in agriculture sector through water audit and apply latest irrigation techniques to improve water use efficiency. 4. Will be able to suggest measures so that each city in the future becomes a water sensitive city 	Link
WSW 164	Integrated watershed and river basin management	<ol style="list-style-type: none"> 1. The ability to understand and analyse watersheds and river basins for wholesome sustainable development, protection of source water. 2. Watersheds no longer comprise agricultural land only but have undergone industrialization and urbanization, so competency will be developed by students to analyse field problems and devise efficient water management techniques and soil management techniques. 3. Students will be able to determine the causes of stress in different river basins and work towards remediation techniques for restoration of river and ecosystem health. 4. Overall students will develop skills for detection, rehabilitation and conservation using participatory implementation of techniques for integrated watershed and river basin management 	Link
WSW 166	Irrigation water management	<p>After successful completion of course, student will:</p> <ol style="list-style-type: none"> 1. Be able to identify, discuss and evaluate principle crops, seasons & production and their interrelated set-up in agriculture 2. Properly understand, critically analyse and quantitatively evaluate weather parameters, natural resources input, artificial inputs and their contribution and importance in agriculture 3. Professionally developed for irrigation water estimation under various conditions of data availability, scales and proper methodologies and master the skills for their applications 4. Technically understand and comment on irrigation project evaluation 	Link
WSW 136	Irrigation water & drainage management	<p>After successful completion of course, student will:</p> <ol style="list-style-type: none"> 1. Be able to identify, discuss and evaluate principle crops, seasons & production and their interrelated set-up in agriculture 2. Properly understand, critically analyse and quantitatively evaluate weather parameters, natural resources input, artificial inputs and their contribution and importance in agriculture 3. Professionally developed for irrigation water estimation under various conditions of data availability, scales and proper methodologies and master the skills for their applications 4. Technically understand, design of irrigation structures including for drainage management and comment on irrigation project evaluation 	Link
WSW 146	Water Resource Economics	<ol style="list-style-type: none"> 1. Understand the importance of an economics perspective on water and its management 2. Apply economic concepts to understanding, designing, and evaluating water projects and policies 3. Distinguish between economic and financial approaches to water resources management and discern the relevance and need for each 4. Appreciate the varied and inter-disciplinary nature of water 	Link

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		management and be able to interact with professionals in various water management positions	
WSW 154	Aquatic Eco-system Management	Students undertaking this course will develop an understanding of values and functioning of Wetland Ecosystems and different aspects of Wetland management planning that will aid governance. Will be useful to students aspiring higher studies and career paths that involves assessment of aquatic biodiversity and governance of Wetland management	Link
WSW 184	Water supply and sanitation	<ol style="list-style-type: none"> 1. Understand water quality concepts and their effect on treatment process selection 2. Appreciate the importance and methods of operation and maintenance of water supply systems 3. Judge options for centralised and urban systems versus decentralised and rural systems 4. Define and evaluate project alternatives on basis of chosen selection criteria 5. Communicate effectively in oral and written presentations to technical and non-technical audiences 	Link
WSW 147	Economic and financial evaluation of water infrastructure	Upon completion of the course the student will be able to: <ol style="list-style-type: none"> 1. Understand the basics of economics of water [test 1] 2. Able to handle financial evaluation [test 2] 3. Able to conduct simple policy analysis in water-related issues. [test3 and test 4] 	Link
WSW 179	Qualitative research methods and technical writing	At the end of the course, students will be able to, <ol style="list-style-type: none"> 1. Independently design and conduct a qualitative research 2. Describe, distinguish and apply qualitative research tools like interviewing, focus group discussions, participant observation, participatory rural appraisal etc. 3. Organise, analyse and interpret data 4. Write research proposals and reports 	Link
WSW 105	Field Trip 2	<ol style="list-style-type: none"> 1. Students understand the various factors to be considered in a water management project. 2. Students learn to appreciate the state-of-the-art technologies in water and disaster management. 3. Students get exposed to live projects through field level data collection, methodology formulation and analysis. 4. Students are equipped to take up dynamic challenges in the field as water professionals 	Link
WSW 104	Project work 2	<ol style="list-style-type: none"> 1. Student develops an understanding of real time problems/challenges in water resources governance and management projects and their alignment with the government programmes. 2. Student learns to apply research methods and different statistical tools in real-time research projects. 3. Student learns and applies relevant scientific methods and techniques (statistical, numerical and/or geospatial) in problem-solving. 4. Student is trained to effectively communicate and demonstrate the learning through structured thesis/dissertation and oral presentation. 	Link

Course code	Course name	Learning Outcome	Link
WSW 161	Water and Sustainability Science	By the end of the course, students will: <ol style="list-style-type: none"> 1. Have a clearer idea of what “sustainability science” is. 2. Command a critical understanding of some of the key related concepts. 3. Be able to deal with the fact that “sustainability science” is not a unified theory but a panoply of approaches with various value premises depending on the stakeholders involved. 	Link

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		4. Have a broader view on the future possibilities leading to more sustainability.	
WSW 153	Water Law	By the end of the course, it is expected that the students will: 1. Demonstrate the ability to understand key concepts in water law 2. Be able to critically appreciate and practically analyse various water laws and policies in India and South Asia	Link
WSW 141	Water quality monitoring and assessment	1. Understand meaning of important parameters for measuring water quality 2. Water quality criteria and standards, and their relation to public health, environment and urban water cycle 3. Learn how to run accurate water quality tests and to determine how the parameters relate to each other 4. Plan water quality surveillance for a given aquatic environment and to understand what a test result means in terms of the health of the ecosystem.	Link
WSW 163	Gender, rights, and equity perspectives for sustainable water management	By the end of the course students will: 1. Have a critical understanding of concept of gender, rights and equity and salience of these perspectives for sustainable water management 2. Be able to recognise various strategies of gendering narratives and its limitations	Link
WSW 111	Statistical methods in water resources	1. Distinguish between a deterministic and stochastic process and situations under which the statistical methods are to be applied 2. Develop an intuitive statistical sense 3. Analyse, model and quantify uncertainty 4. Extract information and draw scientific inference from the data to solve problems related to water resources 5. Develop probabilistic models for predicting outcomes of stochastic processes related to water resources 6. Apply the concepts of inferential and to take informed decisions under conditions of uncertainty	Link
WSW 143	Water resources- Institutions and governance	At the end of the course, students would: 1. Have the ability to understand the reasons for contestation over water resources, its management and governance 2. Be able to understand, analyse issues regarding water governance and reforms in India taking into account social, economic and environmental parameters 3. Be able to articulate the contemporary challenges that the water sector in India faces	Link
WSW 165	Water resource systems and interactions	1. Describe the major components of the hydrological cycle, and understand the interactions within the system and across 2. Predict for a given water resource system various processes and how these processes are dynamically linked with aquatic ecosystems as well as with human activities 3. Explain the key concepts for integrated, multidisciplinary and interdisciplinary analyses of water resources 4. Reckon value of water for various uses and users and explain how these concepts can be used in water resources planning at various spatial and temporal scales.	Link
WSW 151	Water planning and management	1. Students by the end of the course will be aware of policies and strategies involved in planning and management of developed water resources, their conservation, control and protection. 2. They will understand that water management must be dynamic to respond to changing needs and objectives and try account for vagaries of nature. 3. Water planning and management are key to improve the quality of river basins, lakes, wetlands, in fact all water bodies and riparian areas. Modification of human activities is a must for sustainable use of water. 4. The knowledge base gained during this course can be used for	Link

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		multi-disciplinary projects involving water science.	
WSW 172	Geo-informatics for water resources	Upon completion of this course, a fully-engaged student will be able to understand the fundamentals of geoinformatics water resources studies.	Link
WSW 167	Applied hydrology & meteorology	<ol style="list-style-type: none"> 1. Students will be capable of performing spatial and temporal analysis of rainfall and runoff data at all scales of planning and management involving watersheds and river basins. 2. Students will be to assess drought situations, flood scenarios and normal flows in streams and catchments using the skills developed during this course 3. Real life field application challenges like differences in urban and rural hydrologic processes due to human intervention can be identified and inputs can be provided for design of hydraulic structures. 	Link
WSW 145	Water quality monitoring and analysis	<ol style="list-style-type: none"> 1. Understand meaning of important parameters for measuring water quality 2. Water quality criteria and standards, and their relation to public health, environment and urban water cycle 3. Learn how to run accurate water quality tests and to determine how the parameters relate to each other 4. Plan water quality surveillance for a given aquatic environment and to understand what a test result means in terms of the health of the ecosystem. 	Link
WSW 181	Water planning and management	<ol style="list-style-type: none"> 1. Students by the end of the course will be aware of evolution in planning and management process for water resources as envisaged and formulated by the state on the advice of Planning Commission. 2. They will understand the evolution of water planning from the development phase to strategic planning phase, the need for sustainable economic development of water, assessment of coping strategies for disaster management. 3. They will be able to evaluate alternate water management strategies and suggest methods to protect ecologically sensitive areas. 4. They will develop an understanding of water use allocation. 	Link
WSW 133	Advanced hydraulics	<ol style="list-style-type: none"> 1. Apply the concepts of fluid statics and dynamics. 2. Be able to analyse problems of flow in pipes and open channels 3. Be able design pipe flow networks, including location of pumps and valves. 4. Solve problems based on flow through weirs, notches and orifices 5. Analyse flood routing problems in urban areas 	Link
WSW 103	Field Trip	<ol style="list-style-type: none"> 1. Students understand the various factors to be considered in a water management project. 2. Students learn to appreciate the state-of-the-art technologies in water and disaster management. 3. Students get exposed to live projects through field level data collection, methodology formulation and analysis. 4. Students are equipped to take up dynamic challenges in the field as water professionals. 	Link
WSW 132	Industrial pollution control	<ol style="list-style-type: none"> 1. Analyse and industrial activity and identify the environmental problems 2. Plan strategies to control and reduce pollution 3. Select the most appropriate technique to control and treat industrial pollution 4. Apply environmental management systems (EMS) to an industrial activity 	Link
WSW 177	Social, economic and health dimensions of	At the end of the course, the students will be able to <ol style="list-style-type: none"> 1. Explain the linkages between WASH and various socio-economic aspects 	Link

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	water, sanitation and hygiene	<ol style="list-style-type: none"> 2. Understand the global and regional issues of WASH and health 3. Develop analytical skill to analyse WASH related issues 4. Assess the right-based approach of WASH in larger policy framework 5. Perform economic analysis of WASH issues 	
WSW 102	Project work 1	<ol style="list-style-type: none"> 1. Student develops an understanding of real time problems/challenges in water resources governance and management projects and their alignment with the government programmes. 2. Student learns to apply research methods and different statistical tools in real-time research projects. 3. Student learns and applies relevant scientific methods and techniques (statistical, numerical and/or geospatial) in problem-solving. 4. Student is trained to effectively communicate and demonstrate the learning through structured thesis/dissertation and oral presentation 	Link
WSW 106	Project work report	<ol style="list-style-type: none"> 1. Student develops an understanding of real time problems/challenges in water resources governance and management projects and their alignment with the government programmes. 2. Student learns to apply research methods and different statistical tools in real-time research projects. 3. Student learns and applies relevant scientific methods and techniques (statistical, numerical and/or geospatial) in problem-solving. 4. Student is trained to effectively communicate and demonstrate the learning through structured thesis/dissertation and oral presentation 	Link
WSW 182	Water security and conflict management	<ol style="list-style-type: none"> 1. Develop understanding of concepts and issues related to water security and conflicts. 2. Learn approaches to and frameworks for conflict resolution. 3. Appreciate how hydro diplomacy is used as a tool for cooperation. 4. Understand intersectionality and how it plays a role in conflict resolution. 	Link
WSW 122	Water economics and financial management	<ol style="list-style-type: none"> 1. Understand the importance of an economics perspective on water and its management 2. Apply economic concepts to understanding, designing, and evaluating water projects and policies 3. Distinguish between economic and financial approaches to water resources management and discern the relevance and need for each 4. Appreciate the varied and inter-disciplinary nature of water management and be able to interact with professionals in various water management positions 	Link
WSW 142	Traditional knowledge and water management	<p>By the end of the course, students will:</p> <ol style="list-style-type: none"> 1. Understand the salience of various dimensions of knowledge and its relevance for water management. 2. Appreciate the need to go beyond binaries and articulate the need for greater synergies between two knowledge systems and bridging the science-management divide. 3. Be familiar with the concept and need for use of traditional knowledge for adaptive water management. 4. Be aware of traditional practices of water management in South Asia, especially India and also understand why these practices did not sustain, i.e. an insight into the institutional processes that are key to understanding management issues. 	Link
WSW 152	Water disasters: Management and	<p>By the end of the course students will:</p> <ol style="list-style-type: none"> 1. Have an understanding of disaster management practices and 	Link

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	planning	<p>policies.</p> <ol style="list-style-type: none"> 2. Be able to recognise actions in situations of disasters. 3. Be able of comprehend plans to minimise the impacts of various disasters. 	
WSW 162	Applied hydrology	<ol style="list-style-type: none"> 1. Students will be capable of performing spatial and temporal analysis of rainfall and runoff data at all scales of planning and management involving watersheds and river basins. 2. Students will be to assess drought situations, flood scenarios and normal flows in streams and catchments using the skills developed during this course 3. Real life field application challenges like differences in urban and rural hydrologic processes due to human intervention can be identified and inputs can be provided for design of hydraulic structures. 	Link
WSW 184	Water supply and sanitation	<ol style="list-style-type: none"> 1. Understand water quality concepts and their effect on treatment process selection 2. Appreciate the importance and methods of operation and maintenance of water supply systems 3. Judge options for centralised and urban systems versus decentralised and rural systems 4. Define and evaluate project alternatives on basis of chosen selection criteria 5. Communicate effectively in oral and written presentations to technical and non-technical audiences. 	Link
WSW 176	Water quality modelling and application	<ol style="list-style-type: none"> 1. Develop models based on the mass-balance approach 2. Predict the impact of the of external waste loading on different water bodies 3. predict and generate future conditions under various loading scenarios or management/intervention action alternatives 	Link
WSW 172	Geoinformatics for water resources	Upon completion of this course, a fully-engaged student will be able to understand the fundamentals of geoinformatics water resources studies.	Link
WSW 146	Water Resource Economics	<ol style="list-style-type: none"> 1. Understand the importance of an economics perspective on water and its management 2. Apply economic concepts to understanding, designing, and evaluating water projects and policies 3. Distinguish between economic and financial approaches to water resources management and discern the relevance and need for each 4. Appreciate the varied and inter-disciplinary nature of water management and be able to interact with professionals in various water management positions 	Link
WSW 136	Irrigation water & drainage management	<p>After successful completion of course, student will:</p> <ol style="list-style-type: none"> 1. Be able to identify, discuss and evaluate principle crops, seasons & production and their interrelated set-up in agriculture 2. Properly understand, critically analyse and quantitatively evaluate weather parameters, natural resources input, artificial inputs and their contribution and importance in agriculture 3. Professionally developed for irrigation water estimation under various conditions of data availability, scales and proper methodologies and master the skills for their applications 4. Technically understand, design of irrigation structures including for drainage management and comment on irrigation project evaluation 	Link
WSW 173	Optimization Techniques for Water Management	<ol style="list-style-type: none"> 1. Students will be able to use the various optimization methods for future water demand allocation under different scenarios. 2. Efficient water use to satisfy rising water demands using optimization techniques can be inherently applied by students for any irrigation, industrial cluster, municipal or watershed water distribution project. 	Link

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		<ol style="list-style-type: none"> 3. Real life field application challenges like reservoir water allocation for different activities like irrigation, bio diversity maintenance, and environmental flows can be addressed with knowledge of optimization methods. 4. Students will be skilled so that they assess and evaluate water demand in such a way that all water resources are managed for no compromise on sustainability. 	
WSW 175	Advanced Geo-informatics for Water Resources	<ol style="list-style-type: none"> 1. The student will get equipped to analyse geo-information problems encountered in professional practice and develop appropriate methods for studying and/or solving the problems, develop and design appropriate methods for geospatial framework data collection and processing. 2. The student would be able to provide geo-information science and earth observation technology to generate, integrate, analyse and visualize spatial data. 3. The student would be able to formulate and carry out independent research in the general field of Geoinformatics, possibly as part of a multi-disciplinary research and development project 	Link
WSW 186	Design of Water Supply and Sanitation Systems	<ol style="list-style-type: none"> 1. Understand water quality concepts and their effect on treatment process selection 2. Appreciate the importance and methods of operation and maintenance of water supply systems 3. Judge options for centralised and urban systems versus decentralised and rural systems 4. Define and evaluate project alternatives on basis of chosen selection criteria 5. Communicate effectively in oral and written presentations to technical and non-technical audiences. 	Link
WSW 147	Economic and financial evaluation of water infrastructure	<ol style="list-style-type: none"> 1. Understand the basics of economics of water [test 1] 2. Able to handle financial evaluation [test 2] 3. Able to conduct simple policy analysis in water-related issues. [test3 and test 4] 	Link
WSW 178	Applied geo-informatics for water resources	<ol style="list-style-type: none"> 1. The student will get equipped to analyse geo-information problems encountered in professional practice and develop appropriate methods for studying and/or solving the problems, develop and design appropriate methods for geospatial framework data collection and processing. 2. The student will be able to generate, integrate, analyse and visualize spatial data within the area of water resources management. 3. The student would be able to formulate and carry out interdisciplinary research in geospatial modelling of water resources. 	Link
WSW 179	Qualitative research methods and technical writing	<p>At the end of the course, students will be able to,</p> <ol style="list-style-type: none"> 1. Independently design and conduct a qualitative research 2. Describe, distinguish and apply qualitative research tools like interviewing, focus group discussions, participant observation, participatory rural appraisal etc. 3. Organise, analyse and interpret data 4. write research proposals and reports 	Link
WSW 105	Field Trip 2	<ol style="list-style-type: none"> 1. Students understand the various factors to be considered in a water management project. 2. Students learn to appreciate the state-of-the-art technologies in water and disaster management. 3. Students get exposed to live projects through field level data collection, methodology formulation and analysis. 4. Students are equipped to take up dynamic challenges in the field as water professionals 	Link
WSW	Project work 2	<ol style="list-style-type: none"> 1. Student develops an understanding of real time 	Link

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104		<p>problems/challenges in water resources governance and management projects and their alignment with the government programmes.</p> <ol style="list-style-type: none"> 2. Student learns to apply research methods and different statistical tools in real-time research projects. 3. Student learns and applies relevant scientific methods and techniques (statistical, numerical and/or geospatial) in problem-solving. 4. Student is trained to effectively communicate and demonstrate the learning through structured thesis/dissertation and oral presentation. 	
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Course code	Course name	Learning Outcome	Link
MPE 115	Probability and Statistics	<p>At the end of this course, students will be able to</p> <ol style="list-style-type: none"> 1. Understand the fundamental principles of Mathematical Statistics and techniques of proving theorems (Evaluation criteria 1,2 and 4) 2. Understand the principles, techniques and approaches used for statistical inferences (All evaluation criteria) 3. Apply statistical concepts to economic models (All evaluation criteria) 4. Solve problems of importance using statistical techniques (All evaluation criteria) 5. Use STATA/R for summarising and visualization of data, basic probability theory, testing hypotheses, correlation analysis, etc. (Evaluation criteria 3) 	Link
MPE 113	Mathematical Methods for Economics	<p>At the end of this course, students will be able to</p> <ol style="list-style-type: none"> 1. Master the essential concepts and techniques of Linear Algebra, Real Analysis and Optimization and apply them to important economic problems [Tests 1-4] 2. Understand and appreciate the motivation of essential mathematical assumptions made in economic modelling [Test 4] 	Link
MPE 121	Macroeconomics	<p>By the end of the course, students will:</p> <ol style="list-style-type: none"> 1. Command understanding of the basic concepts of Macroeconomics (Test 1) 2. Be equipped with alternative traditions of Macroeconomics through deeper understanding of the Keynesian school of thought and identify the key theoretical differences with the schools of thoughts that emerged as critiques of Keynesianism (Test 2) 3. Command critical understanding of the mainstream views and micro-foundations of Macroeconomics (Test 3) 	Link
MPE 131	Microeconomics	<p>At the end of this course, students will be able to</p> <ol style="list-style-type: none"> 1. Understand standard theoretical models of individual and market behaviour at a rigorous level [Tests 1-2] 2. Mathematically formulate key microeconomic problems and salient variations [Tests 1, 3, 4] 3. Critically appreciate microeconomic assumptions and their limitations [Tests 2-4] 	Link
MPE 111	Constrained optimization and linear Algebra	<p>At the end of this course, students will be able to</p> <ol style="list-style-type: none"> 1. Master the essential concepts and techniques of Linear Algebra, Real Analysis and Optimization and apply them to important economic problems [Tests 1-4] 2. Understand and appreciate the motivation of essential mathematical assumptions made in economic modelling [Test 4] 	Link
MPE 142	Environment and economic development	<p>By the end of the course, students will:</p> <ol style="list-style-type: none"> 1. command a critical understanding of the key concepts of development, underdevelopment, ecosystem services, sustainable economic development and their uses in practice. [test 1 and 3] 2. be equipped with the 'toolset' for writing a literature survey [test 2] 	Link

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		3.understand the environment-economic development linkages, at the conceptual, theoretical, methodical, policy and operational plains, with illustrations from India.[test 4]	
MPE 171	Quantitative methods	At the end of this course, students will be able to: 1. Understand the fundamental principles of Mathematical Statistics and techniques of proving theorems (Test 1) 2. Understand the principles, techniques and approaches used for statistical inferences (Test 3) 3. Apply statistical concepts to economic models (Test 2) 4. Solve problems of importance using statistical techniques (Test 2) 5. Use STATA/R for summarising and visualization of data, basic probability theory, testing hypotheses, correlation analysis, etc.(Test 2)	Link
MPE 172	Econometrics	After completing this course, students will be able to: 1. Identify modelling problems relating to continuous endogenous/choice variables [Tests 1-3] 2. To solve problems relating to continuous endogenous/choice variables through empirical analysis [Tests 2- 4]	Link
MPE 182	Growth economics	At the end of this course, students will be able to 1. Understand different macroeconomic models of growth. [test 1 and 3] 2. Appreciate empirical strategies in Growth Economics [test 2] 3. Identify factors that have influenced economic growth in India and the associated policy implications [test 1 and 3] 4. Understand the contribution of institutions and human capital to economic growth as well as limits of growth imposed by natural resources and environmental degradation. [test 3] 5. Assess the applicability of economic growth models in India and other developing nations. [test 4]	Link
MPE 185	Environment and economic development	By the end of the course, students will: – 1.command a critical understanding of the key concepts of development, underdevelopment, ecosystem services, sustainable economic development and their uses in practice. [test 1 and 3] 2.Be equipped with the ‘toolset’ for writing a literature survey [test 2] 3. understand the environment-economic development linkages, at the conceptual, theoretical, methodical, policy and operational plains, with illustrations from India.[test 4]	Link
MPE 184	Development economics	At the end of this course, students will be able to 1. Conceptualize the developmental challenges in India and other developing nations. (Evaluation: All components) 2. Understand theories and empirics in Development Economics. (Evaluation: All components) 3. Understand data and empirical methods used in development analysis (Evaluation: Empirical Exercise) 4.Critically appreciate the literature in Development Economics (Evaluation: Critical Review of Literature) 5.Synthesize Evidence for Policy (Evaluation: Policy Brief Assignment) 6.Demonstrate Soft skills: written and verbal communication; critical thinking; team work	Link
MPE 141	Indian economics and development	1.Application of Economic Theory in the context of India 2.Exposure to Indian Economic Data 3. Critical Review of Research Papers	Link
MPE 144	Theory of environmental policy	1.To appreciate the “sink” function of environment, its impact on the economic system(Test 1) 2. To gain an understanding on a variety of policy instruments for addressing environmental problems (Test 2 and Test 3) 3.To be exposed to and learn in the process skills for making	Link

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		effective presentations (Test 2)	
MPE 146	Economics of natural resources	<p>1.Ability to “see” the link between the concepts, theories and principles with the methods and applications in the area of ecological, environmental and resource economics (EERE)</p> <p>2. Exposure to a variety of methods in both mainstream and alternative frameworks that connect economy with its environment or the eco-system within which it functions.</p> <p>3.Skill to apply various methods in EERE in the South Asian context</p> <p>4.Prepare for the Thesis proposal and the Master’s Thesis itself to be carried out during the second year of the programme</p>	Link
MPE 147	Game Theory	<p>1. At the end of this course, students should be able to model strategic behaviour in different economic situations.</p> <p>2. Also, students should be able to predict the outcomes of certain strategic models by applying standard equilibrium notions</p>	Link
MPE 122	Indian Agricultural development: contemporary issues	<p>By the end of the course, students will:</p> <p>1. Develop critical understanding regarding growth processes in Indian Agriculture.</p> <p>2. Ability to critically exam the nature and beneficiaries of development, agriculture-industry development linkages and land distribution in rural India.</p> <p>3. Gain knowledge regarding sustainable farming practices in Indian agriculture.</p> <p>4. Assess the impacts of climate change on Indian agriculture.</p> <p>5. Evaluate the impacts of economic reforms on Indian agriculture.</p>	Link
MPE 124	Advanced econometrics	<p>After completing this course the students will be able to</p> <p>1. Distinguish modelling issues relating to panel and non-linear regression modelling [Tests 1-2 and Test 4]</p> <p>2. Analyse problems that seek solutions through panel and non-linear regression. [Test 3]</p> <p>3. Proficiency in statistical software. [Test 3]</p>	Link
MPE 152	Environmental economics	<p>1. To appreciate the ‘sink’ function of environment, its impact on the economic system and its valuation in monetary terms (test 1)</p> <p>2. To understand and assess applicability of a range of valuation methods, tools and techniques in the context of several environmental issues at local and national levels (test 1).</p> <p>3. To be exposed to and learn in the process skills for making effective presentations (test 2).</p> <p>4. To gain an understanding on a variety of economic instruments for addressing environmental problems (test 3)</p> <p>5. To be exposed to and learn in the process skills for preparing original works (test 4)</p>	Link
MPE 153	Natural resource economics	<p>1. To appreciate the ‘sink’ function of environment, its impact on the economic system and its valuation in monetary terms (test 1)</p> <p>2. To understand and assess applicability of a range of valuation methods, tools and techniques in the context of several environmental issues at local and national levels (test 1).</p> <p>3. To be exposed to and learn in the process skills for making effective presentations (test 2).</p> <p>4. To gain an understanding on a variety of economic instruments for addressing environmental problems (test 3)</p> <p>5. To be exposed to and learn in the process skills for preparing original works (test 4)</p>	Link
MPE 154	Economics of health and environment	<p>By the end of the course, students will:</p> <p>1.command on the foundations of the key concepts relating environment and health [test 1]</p> <p>2.develop competences with the tools and how to implement them [test 2]</p> <p>3.build confidence in writing term paper [test 3]</p> <p>4.understand linkages between environment and health, concepts,</p>	Link

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		theoretical and methodological understanding with case studies and a brief overview of the health care incentives and financing. [test 4]	
MPE 176	Methods of research in economics	1. Skills for making effective presentations. 2. Ability to prepare a comprehensive research proposal.	Link
MPE 178	Time series and regression analysis	After completing this course, the students will be able to 1. Distinguish problems in econometrics relating to cross-section and time series [Tests 1-2 and Test 4] 2. To theoretically and empirically formulate problems that can be resolved using time series analysis [Test 3] 3. Proficiency in use of statistical package [Test 3]	Link
MPE 193	Trade, development and environment	1. Evolution of theoretical models of international trade and their empirical applications. (Evaluation: Written Exam, Term Paper) 2. Equipping the students with tools and techniques of empirical research in international trade. (Evaluation: Written Exam, Empirical Exercise) 3. Understanding the empirical challenges (data and techniques) of identifying causality between globalization and development/environment (Evaluation: Written Exam, Empirical Exercise, Term Paper) 4. Ability to evaluate the consequences of various instruments of trade policies on different stakeholders. (Evaluation: Written Exam, Term Paper) 5. Articulation of the debates between trade and developmental issues as well as trade and environmental issues (Evaluation: Written Exam, Empirical Exercise, Term Paper)	Link
MPE 106	Thesis Proposal	1. Skills for making effective presentations. 2. Ability to prepare a comprehensive research proposal	Link
MPE 125	Ecological Economics	1. Command a critical understanding of the key concepts of ecological economics, with special reference to India. 2. Be able to apply them in their own study of the sustainability of the economy, locally as well as globally.	Link
MPE 128	Indian Agricultural in a Global Setting	1. Develop critical understanding regarding production and exchange relations in Indian agriculture in different phases of capitalist development. 2. Enable to understand the impact of policies, technological and climatic factors at different points of time since Independence on Indian agriculture.	Link
MPE 175	Techniques of environmental valuation	The students will be able to understand the basic concepts of valuing environment and use the techniques for case specific problems [all evaluation criteria]	Link
MPE 177	Time series and regression analysis	1. After completing this course the students will be able to Distinguish problems in econometrics relating to cross-section and time series (Mid-terms exam1) 2. To theoretically and empirically formulate problems that can be resolved using time series analysis (Mid-term 1 and 2, finals, and Problem sets and Practicals).	Link
MPE 179	Advanced econometrics	1. After completing this course the students will be able to Distinguish modelling issues relating to panel and non-linear regression modelling (Minor tests 1 and 2, and Finals) 2. Will be able to analyse problems that seek solutions through panel and non-linear regression (Assignments and Lab practicals)	Link
MPE 192	Trade and the environment	1. Students will be able to deepen their understanding of the linkages between trade and the environment. [all evaluation criteria] 2. Students will be able to strengthen their analytical skills in critically analysing various issues with respect to trade and the environment [all evaluation criteria]	Link
MPE 137	Microeconomics II	1. Understand the nature of different forms of market failure and theoretical responses to such market failure (Test 2) 2. Understand collective decision making processes and their	Link

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		properties in an axiomatic framework (Test 3) 3. Be able to conceptualize and resolve simple problems of market/institutional failure (Test 1)	
MPE 145	Economics of health and environment	1. The students understand the basic concepts in the area of environmental health and how to quantify the health damage caused by pollution	Link
MPE 108	Master's Thesis	At the end of this course, the student should be able to demonstrate the ability 1.to conduct original and meaningful research in Economics (Tests 1-3) 2.to deliver effective oral presentations of such research (Tests 1-2) 3.to motivate, conceptualise, design and execute original research questions in the form of written output (Test 3)	Link
MPE 135	Collective action and environmental management	1. Understand theory of collective action models[all evaluation criteria] 2. Analyse collective action problems and issues pertaining to environment and incorporate evidenced based solutions.[class presentation and discussions]	Link
MPE 174	Labour economics	1.Students will develop a critical understanding regarding history of work and theory of wages [test 1] 2.Command in-depth understanding regarding rural and urban labour. Students will also able to critically understand how the social constructs like gender and caste impacts labour [tests 2 and 3] 3.Students will develop an understanding of labour as social relations of production that will enable them to locate it in that perspective rather than locating labour simply as a factor of production [test 4]	Link
MPE 183	Energy Economics	1. Appreciate and understand economics of energy production and supply, energy consumption and demand, energy regulation, and energy market and trading (Test 1) 2. Comprehend both theoretical and empirical aspects of energy economics (Test 1 and Test 3) 3. Learn advanced tools and techniques for conducting empirical assessment energy sector (Test 2) 4. Understand complex nuances of energy, environment and climate interactions and interdependencies (Test 2 and Test 3)	Link
MPE 151	Law and economics	At the end of this course, students should have a novel perspective on legal rules. They would be equipped with techniques to pursue independent research in law and economics.	Link

Course code	Course name	Learning Outcome	Link
MPD 127	Perspectives on Development	At the end of the course, students would be able to – 1. Critically reflect on the nature and forms of diverse Development Organizations; [Discussion Leads & Assignment] 2. Examine the State-Market and Civil Society actors in Development; [Book Review] 3. Understand the politics and sociology of Development Institutions [Exam]	Link
MPD 143	Principles of Economics	By the end of the course, students would be able to; 1.Understand the key micro and macroeconomic principles 2.Relate the key economic principles to real life situations, especially in the context of development challenges that we face today. 3.Understand the role of markets and its relation to social policy	Link
MPD 173	Social Research Methods	At the end of the course, students would be able to do the following– 1.From the Assignment 1 the students will be able to write research	Link

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		<p>proposal and initiate a process in order to carry out independent research pertaining to any specific issue. They will be able to design a research, justifying use of various methods/tools to carry out the same</p> <p>2.From the Assignment -2, students will be enabled to conduct fieldwork and data collection. They will not only collect the qualitative and quantitative data but also analyse and present it in a form of research report.</p> <p>3.In the major exam, the students will analyse a case study and will prepare research design by analysing it in very limited time.</p>	
MPD 111	Quantitative Analysis for Development Practice	<p>1. Upon completion of the course, candidates would be able to use basic statistical tools, learn ways to present quantitative data and get ability to draw useful inferences from analysed data.</p> <p>2. Knowledge of statistical tools and their usage will help students appropriately apply such techniques in the research that they'll carry out over different semesters as well as in future</p>	Link
MPD 101	Integrated Approaches to Sustainable Development Practice	<p>1.From the Assignment-1, the students will able to synthesize and review the policy relevant to their area of intervention. It will relate the findings to current policy debates, with an emphasis on applying the research outcomes rather than assessing the research procedures.</p> <p>2.From the Assignment-2 the students will be able to identify and analyse key challenges in the implementation of sustainable development, in a specific country or subnational level setting.</p>	Link
MPD 135	Application of Environmental Science	<p>1. The students will understand the principles of environmental science.</p> <p>2. The students will be familiar with basic ecological principles and their application.</p>	Link
MPD 152	Law, Society and Sustainable Development	<p>1. Awareness about the basic tenets of Indian environmental law</p> <p>2. Familiarity with the institutional structure of Indian environmental governance and the role of the Indian judiciary.</p> <p>3. Understanding the procedural and substantive requirements in certain areas of environmental regulation such as environmental clearance and forest clearance.</p> <p>4. Appreciating the need for transparency, accountability and effective public participation in environmental decision making.</p>	Link
MPD 185	Organizational Behaviour and Human Resource Management for non-profit Organizations	<p>By the end of this course, students will;</p> <p>1.Acquire critical, in-depth, and detailed understanding of various theories, techniques and concepts of OB and HRM (Test 1, 2 and 3)</p> <p>2.Develop skill sets for effective and sustainable behavioral and human resource management in complex organizational settings (All the tests)</p> <p>3.Develop structured thinking on a specific theme, build team spirits and enhance ability to analyze and apply various OB concepts and techniques and HR practices, principles and policies (Test 2)</p> <p>4.Understand and appraise both the theoretical and practical aspects of the OB and HRM and develop the ability to understand, interpret and relate various themes and topics studied (Test 3)</p>	Link
MPD 122	Public health and development: Issues and methods	<p>At the end of the course, the students will be able to:</p> <p>1. develop global perspectives on population health and its significance in the overall development agenda.</p> <p>2. adapt and apply the basic techniques of epidemiological analysis, in order to facilitate systematic research studies in population health science.</p> <p>3. develop a solution-oriented approach to deal with real-life public health challenges.</p>	Link
MPD 129	Project Design and Management for Sustainable	<p>By end of the course, students will;</p> <p>1.Appraise and understand the difficulties and dilemmas that project managers face in the implementation of programmes and</p>	Link

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	Development Practice	<p>projects aimed at bringing about changes. (All the tests)</p> <p>2. Develop a comprehensive understanding of the various approaches and tools(including LFA) required for effective change management. (All the tests)</p> <p>3.Develop critical understanding of the organisational and human resource management challenges encountered while implementing sustainable development programmes and projects (All the tests)</p>	
MPD 161	Public Policy Processes and Institutions	<p>By the end of this course, the students will be expected to:</p> <p>1. Be able to understand the process of policy formulation and implementation (Test 1 and 2)</p> <p>2. Be able to understand the role of various institutions and their relevance in the policy process (Test 1 and 2)</p> <p>3. Be able to analyze policy with respect to: rationale, objectives, outcomes and role and influence of various stakeholders (Test 3)</p> <p>4. Be able to appreciate the intersectoral linkages between various policies (Test 3)</p>	Link
PPS 132	Development Theories and Processes	<p>At the end of the course, the participants would be able to</p> <p>1.know diverse theories of development; and</p> <p>2.critically reflect on the development processes and social justice.</p>	Link
MPD 113	Application of Quantitative Data analysis in Development Practice	<p>Upon completion of this course, students would be able to:</p> <p>1. create datasets using raw data collected during the primary survey in the community, and analyze them with a well-defined objective.</p> <p>2. use appropriate statistical techniques/methods based on the nature of data: Application of appropriate statistical techniques will be assessed based on the term paper evaluation where students will be asked to apply suitable statistical techniques based on nature of variables and number of samples (Test 2 and 4).</p> <p>3. use large scale survey in different development context ranging from problem identification to programme and policy design. The second term paper will be based on current development challenges and how large scale nationally representative surveys can be used to generate evidence and evaluate policies (Test 2 and4).</p>	Link
MPD 183	ICT for Sustainable Development	<p>The main objective of the course is to help students learn about the concepts, theories and applications concerning the field of ICT for sustainable development. Through case studies and live projects, the students are expected to learn how ICTs can be best applied for sustainability challenges. The learning objectives of the course would be;</p> <p>1. Familiarize the students with main theories and conceptual frameworks in the field of ICT for development</p> <p>2. Help students learn potential of both information and communication technologies in different areas such as health, education, agriculture, finance, gender equality and climate change.</p> <p>3. Familiarise students with the existing innovative business models and other applications in the above mentioned areas with reference to India and other developing countries.</p> <p>4. Help students compare and contrast various business models (public, private sector, PPP, civil society) with respect to technology, infrastructure, capacity building, human resource etc.</p> <p>5. Learn how ICT models can be successfully implemented at the field and understand critical success factors and constraints in adoption</p>	Link
MPD 102	Group Practicum 2: Local Needs Assessment	<p>By the end of this course, students will learn to:</p> <p>1.Design and carry out independent research with the local community</p> <p>2.Appreciate the significance of understanding the local socio-cultural and economic context before designing a development intervention</p> <p>3.Identify community needs using various research tools and</p>	Link

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		participatory techniques 4.Prioritize community needs with the community, depending on local conditions and resource context	
MPD 124	Population and Health: Techniques of analysis Policy Perspectives	Upon completion of the course, candidates would be: 1. able to apply various techniques of analysis to assess population dynamics 2. able to collate useful data and information across various published sources of population databases, and aware of crucial gaps in useful data 3. aware of multifaceted approaches of health policy processes and able to apply various common frameworks of health policy	Link
MPD 126	Key concepts of Cultural and Political ecology	Upon completion of the course, students would be able to: 1. recognize and appreciate human cultural variation and ingenuity in terms of unique adaptations to varied bio-physical environments 2. discuss environmental problems from an anthropological / political ecological perspective apply knowledge of diverse human adaptations and socio-political issues to analyse contemporary environmental problems	Link
MPD 145	Integrated Impact Assessment	At the end of the course, the student would be able to; 1.Understand various dimensions of impact assessments 2.Acquire knowledge about an array of tools and techniques of the IIA 3.Understand the domains of applications of such tools and techniques	Link
MPD 147	Development Economics	Upon completion of the course, students would be able to: 1.recognize and appreciate conventional developmental challenges such as poverty, inequality and unemployment 2.develop analytical abilities to connect various developmental challenges 3.contextualise developmental challenges and identify potential solutions	Link
MPD 153	Management of Development Organizations	At the end of the course, students would be able to – 1. Critically reflect on the nature and forms of diverse Development Organizations; [Discussion Leads & Assignment] 2. Examine the State-Market and Civil Society actors in Development; [Book Review] 3. Understand the politics and sociology of Development Institutions [Exam]	Link
MPD 106	Group Practicum-community needs assessment	By the end of this course, students will learn to: 1. Design and carry out independent research with the local community 2. Appreciate the significance of understanding the local socio-cultural and economic context before designing a development intervention 3. Identify community needs using various research tools and participatory techniques 4. Prioritize community needs with the community, depending on local conditions and resource context	Link
MPD 104	Final Project	After the major project, the student should be able to demonstrate the ability 1.to independently frame the research problem in a systematic and structured way 2to conceptualise and formulate research problem, research questions and research objectives (Assessment-3, 4 and 5) 3.to acquire skillsets in designing of research instruments, conducting fieldwork, and collating the required data (Assessments- 3, 4 and 5) 4.to analyse qualitative and quantitative data and present results (Assessment- 3, 4 and 5) 5.to professionally manage and execute the research project	Link

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		(Assessment-2) 6.to communicate the research through effective oral presentations(Assessment-3) 7.to write structured research reports (Assessment -5)	
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Course code	Course name	Learning Outcome	Link
BSI 175	Statistical methods for management	Learning outcomes: After successful completion of the course, students will be able to – 1. Understand the fundamental principles of statistics and data analysis (Test 1,2 and 3) 2. Understand the principles, techniques and approaches used for statistical inferences (Test 3 & 4) 3. Apply statistical concepts to business and economic models (All Tests) 4. Solve problems of importance using statistical techniques (All Tests) 5. Application of data analysis for decision making (All Tests)	Link
MPP 163	Principles and concepts of sustainability	Learning Outcome: On successful completion of the course, the students would be able to – 1. Discuss the concept of sustainability and able to see how it translates into realities of organizations and communities. 2. Be able critically analyse different, often competing, definitions of sustainability driven by perspectives and interests of societal stakeholders. 3. Become familiar with sustainability visions and practices relevant for the business community at the level of companies, supply chain, communities.	Link
PPM 101	Business Communication	Learning outcomes 1. Gain competency in writing business letters, memos, e mails, proposals, reports, press releases 2. Deliver a business presentation using PowerPoint 3. Demonstrate cross - cultural skills in a trans-national business environment	Link
PPM 128	Corporate accounting and reporting	Learning Outcomes: Upon completion of this course, it is expected that: 1. Participants will be able to understand various principles on which financial statements are prepared. 2. Participants will acquire critical thinking skills to analyze financial data, and demonstrate the ability to communicate such data effectively, as well as the ability to provide knowledgeable recommendations. 3. Participants will be able to understand the role of managerial accounting in decision making. 4. Participants will be able to understand and interpret the various cost information for planning and control purposes in managerial decision making.	Link
PPM 148	Managerial economics	Learning outcomes – 1. Understand the key concepts, models, tools and techniques of managerial economics (Test 1, 2& Test 3) 2. Understand and appreciate the applications of various tools and techniques of managerial economics (Assignment) 3. Develop abilities of applying the tools, techniques and models in resolving real life business problems (Assignment &Test 3)	Link
PPM 157	Business ethics	Learning outcomes: The course will encourage the students to reason about issues from multiple perspectives. Further it will: 1. Expose the students to a diverse and important set of ethical systems 2. Increase the knowledge and awareness on ethics and ethical behaviour	Link

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		3. Apply ethical systems to specific business problems	
PPM 168	Sustainability reporting	<p>Learning Outcome</p> <p>After attending the course, the student will:</p> <ol style="list-style-type: none"> 1. Gain ability to describe the history, need and benefits of sustainability reporting by firms (Test 1, Test 2, Case Analysis) 2. Critically evaluate practices of sustainability reporting (Case Analysis, Test 2) 3. Prepare sustainability reports in accordance with various guidelines, standards and frameworks (Project, Case analysis) 	Link
PPM 175	Fundamentals of management	<p>Learning outcomes</p> <p>By the end of the course, the students should be able to:</p> <ol style="list-style-type: none"> 1. Demonstrate an understanding of different organizations and associated managerial challenges (Test 1 and 2) 2. Apply different approaches in the context of real-life challenges (Test 1 and 2) 3. Ability to assimilate and critically evaluate basic theories and concepts of management (Test 1, 2 and 3) 	Link
PPM 196	Marketing management	<p>Learning outcomes:</p> <p>After attending this course, students will be able to:</p> <ol style="list-style-type: none"> 1. Develop an understanding of the role of marketing in the success of an organization (News presentation, Mid Term exam) 2. Develop an ability to identify and assess strategic choices in marketing (Mid Term exam, End Term exam) 3. Be able to propose innovative solutions to customer needs and continuous improvement of offerings (News presentation, Group Project) 4. Be able to develop the Marketing Plan for any organization (Group Project, End Term exam) 	Link
PPM 145	Managerial economics-1	<p>Learning outcomes –</p> <ol style="list-style-type: none"> 1. Understand the key concepts, models, tools and techniques of managerial economics (Test 1, 2& Test 3) 2. Understand and appreciate the applications of various tools and techniques of managerial economics (Assignment) 3. Develop abilities of applying the tools, techniques and models in resolving real life business problems (Assignment &Test 3) 	Link
PPM 159	Marketing Management-1	<p>Learning outcomes:</p> <p>After attending this course, students will be able to:</p> <ol style="list-style-type: none"> 1. Develop an understanding of the role of marketing in the success of an organization (News presentation, Mid Term exam) 2. Develop an ability to identify and assess strategic choices in marketing (Mid Term exam, End Term exam) 3. Be able to propose innovative solutions to customer needs and continuous improvement of offerings (News presentation, Group Project) 4. Be able to develop the Marketing Plan for any organization (Group Project, End Term exam) 	Link
PPM 163	Sustainability reporting and CSR	<p>Learning Outcome</p> <p>After attending the course, the student will:</p> <ol style="list-style-type: none"> 1. Gain ability to describe the history, need and benefits of sustainability reporting by firms (Test 1, Test 2, Case Analysis) 2. Critically evaluate practices of sustainability reporting 	Link

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		(Case Analysis, Test 2) 3. Prepare sustainability reports in accordance with various guidelines, standards and frameworks (Project, Case analysis)	
PPM 181	Management functions and organisation behaviour	Learning outcomes By the end of the course, the students should be able to: 1. Demonstrate an understanding of organizations as complex and pluralistic places where both conflict and cooperation are normal occurrences (Test 1, 2 and 3) 2. Ability to reflect on their personal leadership skills and ability to exhibit leadership qualities in organizations (Test 2) 3. Ability to assimilate, and apply knowledge of basic theories and concepts to solve organizational behaviour problems 4. (Test 1, 2 and 3)	Link
PPM 173	Quantitative methods in management-I	Learning outcomes: At the end of the course, it is expected that students are able to successfully carry out simple linear regression estimations and interpret the results. This course is the pre-requisite for the Semester 2 course PPM 172a.	Link
MPP 183	Climate Change and development	Learning outcomes 1. Get proper understanding of Sustainable Development and related issues recognize the issues related to man-environment interactions and various established theoretical perspective 2. discuss environmental problems from a social perspective 3. apply theoretical knowledge into practice while dealing with contemporary environmental problems	Link
PPM 133A	Energy policy and management	Learning Outcomes: 1. Develop an understand the reserves of various energy resources and the supply scenario 2. Ability to understand the extent and importance of energy in business and management. 3. Develop the ability to analyse the avenues for reduction in energy demand through various measures like improving energy efficiency, demand side management etc.	Link
BSI 122	Macroeconomic Environment	Learning outcomes: After successful completion of the course, students will be able to – 1. Interpret and measure the key Macroeconomic variables (Test-1) 2. Explain the circular flow of income (Test-1) 3. Describe the roles of fiscal and monetary policy in an economy (Test 1 & 2) 4. Understand the concept of business cycle (Test-3 & 4) 5. Explain and uses of the growth models (Test-4) 6. Analyse the factors influencing the balance of payments and the exchange rate (Test 3 & 4) 7. Explain and understand the mechanisms of international trade (Test 2, 3 & 4)	Link
BSI 171	Management information systems	Learning outcomes By the end of the course, the student will be able to: 1. Develop an exhaustive understanding of the usage of MIS in organizations. 2. Demonstrate an ability to explain the classifications of MIS and linking MIS to business strategy for strategic advantage. 3. Develop an ability to assess the requirements of MIS design in different organizations including functions and	Link

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		<p>issues</p> <p>4. at each stage of system development.</p>	
MPP 173	Qualitative research methods in management	<p>Learning outcomes:</p> <ol style="list-style-type: none"> 1. Develop the knowledge and skills required to specify, evaluate and utilise different types of unstructured and semi information. 2. Develop a competence in: <ol style="list-style-type: none"> a. Problem formulation, hypothesis generation in situations where exploratory nature of research work plays a critical role; b. Implementing the process of research design through collection of data methods like focus groups, depth interviews, 3. observation and other advanced data collection methods; <ol style="list-style-type: none"> a. Analysing the semi-structured and unstructured data so collected; and Executing projects with a focus on decision making and action. 	Link
PPM 114	Corporate social responsibility	<p>Learning outcomes</p> <p>At the end of the course, the students would have gained understanding of interrelationship between business, Government and Society and would be able to relate and describe multidisciplinary, strategic and evolving nature of CSR (Test 1, Test 2)organize, plan and manage CSR projects and communicate CSR activities of organization (Test 2 and 3) conduct CSR audits and aid in making CSR strategy at the organizational level create shared value for business with society (Test 2, 3, 4)</p>	Link
PPM 116	Organizational behaviour and leadership	<p>Learning outcomes</p> <p>By the end of the course, the students should be able to:</p> <ol style="list-style-type: none"> 1. Demonstrate an understanding of organizations as complex and pluralistic places where both conflict and cooperation are normal occurrences (Test 1, 2 and 3) 2. Ability to reflect on their personal leadership skills and ability to exhibit leadership qualities in organizations (Test 2) 3. Ability to assimilate, and apply knowledge of basic theories and concepts to solve organizational behaviour problems (Test 1, 2 and 3) 	Link
PPM 122	Corporate finance	<p>Learning Outcomes:</p> <p>Developing –</p> <p>A Comprehensive understanding of business finance;</p> <p>A comprehensive idea of sustainability financing and financial sustainability;</p> <p>Requisite skills needed for financial decision making;</p> <p>An introductory knowledge about finance markets.</p>	Link
PPM 139	Strategies for sustainable business	<p>Learning outcomes</p> <ol style="list-style-type: none"> 1. To familiarize the students with factors affecting the firm and industry in long run 2. and also with the tools and techniques of external as well as internal environmental analysis 3. To develop their analytical as well as decision-making skills to formulate and evaluate strategy under a given set of 4. environmental factors 5. To develop a practical understanding of strategy formulation and implementation process 6. To develop an understanding of impact of regulators and stakeholders on business strategy and introduce the 	Link

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		concept 7. of sustainable business strategy	
PPM 149	Advanced statistical methods for management	Learning outcomes: At the end of the course, it is expected that students are able to - 1. successfully carry out regression technique under various conditions using available data (all evaluations) 2. develop an understanding of underlying assumption/conditions of the various techniques of forecasting 3. (all evaluations) 4. restructure/transform available data into suitable form to apply various statistical techniques (all evaluations).	Link
PPM 158	Legal aspects of business	Learning outcomes After completing this course, the students would be: 1. able to appreciate the importance of law and legal institutions in business 2. able to have a basic understanding of the laws relating to contract, consumer protection, competition, companies and dispute resolution.	Link
PPM 107	Sustainable business strategy	Learning outcomes 1. To familiarize the students with factors affecting the firm and industry in long run 2. and also with the tools and techniques of external as well as internal environmental analysis 3. To develop their analytical as well as decision-making skills to formulate and evaluate strategy under a given set of 4. environmental factors 5. To develop a practical understanding of strategy formulation and implementation process 6. To develop an understanding of impact of regulators and stakeholders on business strategy and introduce the concept 7. of sustainable business strategy	Link
PPM 142	Managerial economics-2	Learning outcomes – 4. Understand the key concepts, models, tools and techniques of managerial economics (Test 1, 2& Test 3) 5. Understand and appreciate the applications of various tools and techniques of managerial economics (Assignment) 6. Develop abilities of applying the tools, techniques and models in resolving real life business problems (Assignment &Test 3)	Link
PPM 146	Legal aspects of business	Learning outcomes After completing this course, the students would be: 3. able to appreciate the importance of law and legal institutions in business 4. able to have a basic understanding of the laws relating to contract, consumer protection, competition, companies and dispute resolution.	Link
PPM 151	Infrastructure policies reforms and law	Learning outcomes: 1. To appreciate the importance of law and legal institutions in infrastructure 2. To understand the need for reforms in various infrastructure sectors 3. <input type="checkbox"/> To understand he rationale for independent regulatory structures and the role of PPP.	Link
PPM 171	Management information	Learning outcomes By the end of the course, the student will be able to:	Link

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	systems	<ol style="list-style-type: none"> 5. Develop an exhaustive understanding of the usage of MIS in organizations. 6. Demonstrate an ability to explain the classifications of MIS and linking MIS to business strategy for strategic advantage. 7. advantage. 8. Develop an ability to assess the requirements of MIS design in different organizations including functions and issues 9. at each stage of system development. 	
PPM 174	Quantitative methods in management-2	<p>Learning outcomes: At the end of the course, it is expected that students are able to successfully carry out simple linear regression estimations and interpret the results. This course is the pre-requisite for the Semester 2 course PPM 172a.</p>	Link
PPM 187	Production and operations management	<p>Learning Outcome: After completing the course the participants shall develop an understanding on how to create a production entity with focus on -</p> <ol style="list-style-type: none"> 1. Production Base 2. Financial (Cost) Performance . 3. Technical and Operational capabilities . 4. Human Capabilities, 	Link
MPP 147	Environmental economics	<p>Learning outcomes After attending the course the students would be</p> <ol style="list-style-type: none"> 1. acquainted with the environmental management system and its benefits 2. able to identify and review audit-related documentation, prepare checklists and audit process 3. able to apply tools such life cycle assessment, environmental audits, evaluation of 4. environmental performance for environmental decision-making to evaluate the effectiveness of systematic EMS monitoring processes. 	Link
BSI 125	Accounting and finance for sustainability	<p>Learning Outcome: After successful completion of the course, the students will be able to:</p> <ol style="list-style-type: none"> 1. Develop a complete understanding of sustainable financing market systems, the tools and instruments used for financing sustainable development. 2. Have an indepth knowledge on the challenges pertaining to sustainable and ESG financing and the role of 3. several stakeholders including central banks, financial supervisory authorities, national and multilateral development banks, corporate banks, and institutional investors to fund sustainable development efforts. 4. Develop a thorough understanding on the nature of risks associated with sustainable financing and some of 5. the accounting tools to address such risks. 6. Have a thorough understanding of the international climate change negotiations and India's role in climate 7. talks. 8. Develop a fair understanding of financial policy instruments and initiatives with regard to integrating 9. climate change and sustainability into financial policy and supervisory frameworks. 	Link
BSI 189	Public private partnership	<p>Learning outcomes</p> <ol style="list-style-type: none"> 1. PPP as a mechanism to attract private investment for development and delivery of infrastructure and services 2. Risk identification, risk sharing and risk mitigation for PPPprojects 	Link

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		<ol style="list-style-type: none"> 3. Contracting for and contract management of PPP contracts during their lives 4. Financing instruments available for PPP projects 5. Role of and initiatives by the government in promoting and supporting PPP projects 6. Capacities amongst stakeholders to develop and implement PPP projects 	
PPM 100	Minor Project	<p>Learning outcomes</p> <ol style="list-style-type: none"> 1. Develop an understanding of problems/challenges in contemporary areas of business, management, finance and economics 2. To gain necessary skills through on-job training on various aspects such as problem identification, analyse data, report writing, team-work etc. 3. To effectively communicate and demonstrate the learning through structured thesis/dissertation and oral Presentation 	Link
PPM 104	Consumer behaviour	<p>Learning Outcomes: Upon successful completion, students will have the knowledge and skills to:</p> <ol style="list-style-type: none"> 1. Identify the major influences in consumer behaviour. 2. Distinguish between different consumer behaviour influences and their relationships. 3. Establish the relevance of consumer behaviour theories and concepts to marketing decisions. 4. Implement appropriate combinations of theories and concepts. 5. Recognise social and ethical implications of marketing actions on consumer behaviour. 6. Use most appropriate techniques to apply market solutions 	Link
PPM 109	Business to business marketing	<p>Learning outcome: After completion of the course, the students will be able to:</p> <ol style="list-style-type: none"> 1. Adapt the market planning process for B2B markets (Minor exam 1 and 2, Article presentations) 2. Develop the marketing strategies for any firm for its B2B marketing (Case study and Assignments) 3. Fine-tune the marketing strategies for the B2G dealings for a firm (End Term exam) 4. Apply various new technologies in the entire B2B marketing-mix of a firm (Article presentations, End Term exam) 	Link
PPM 112	Business, natural ecosystems and community	<p>Learning outcomes: By the end of the course, the students will: Develop an understanding of business impacts and dependencies on ecosystems, the ecosystem services and their sustainable use. (Test 1 and 2) Learn tools and techniques of Corporate Ecosystem Review and Valuation (Test 1, 2 and 3) Learn to devise strategies for community engagement and management (Test 2 and 3) Develop an ability to handle both operational and strategic business problems related to both risk assessment and management with respect to impacts on Ecosystems and Communities (Test 3).</p>	Link
PPM 123	Derivatives and risk management	<p>Learning Outcomes: On successful completion of the course students will be able to:</p> <ol style="list-style-type: none"> 1. Recognize the role of derivatives in financial risk management. 2. Demonstrate critical thinking, analytical and problem-solving skills in the context of derivatives pricing and hedging practice. 3. Evaluate alternative risk management strategies and tactics. 4. Demonstrate an understanding of pricing forwards, futures and options contracts. 	Link
PPM	Financial	Learning Outcome:	Link

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125	intermediaries, institutions and regulations	After successful completion of the course, the students would be able to - <ol style="list-style-type: none"> 1. Develop a comprehensive understanding of the financial system & institutions of India. 2. Analyse the trends of Indian financial markets and functioning of its various segments. 3. Develop a holistic perspective about all the financial institutions and their economic significance. 	
PPM 138	Supply chain management	Learning Outcomes: <ol style="list-style-type: none"> 1. The student should be able to identify and appreciate the application of a right supply chain 2. The student should be able to suggest/design a supply chain appropriate to a simple economic environment 3. The student should be able to suggest corrective action in case of an ineffective supply chain. 	Link
PPM 126	Security analysis and portfolio management	Learning outcomes: On successful completion of this course, the student will be able to <ol style="list-style-type: none"> 1. Evaluate the investment environment, alternative investment avenues and understand the risk return framework. 2. Calculate the intrinsic value of different types of securities 3. Analyze equity shares using different approaches and models. 4. Construct, analyze, select and evaluate portfolios along with a deep understanding of Capital market theory and associated models. 	Link
PPM 177	Corporate governance	Learning outcomes: At the end of the course, the students would have: <ol style="list-style-type: none"> 1. Developed an understanding of the conceptual framework for Business Ethics & Values and 2. appreciate ethical issues and concerns that arise while taking decisions in personal and corporate life. 3. Understood the various theoretical frameworks on which corporate governance theories are based. 4. Followed the evolution of corporate governance frameworks as they have evolved internationally. 5. Understood the specific roles, responsibilities, reporting obligations, liabilities and effectiveness of boards of directors, management, shareholders, regulators and other corporate stakeholders in good governance in organizations. 6. Appreciated the challenges that are specific to the Indian context and understand why transplanting 7. western concepts of corporate governance to the Indian setting may not give the desired solutions. 10. Identified the direction for future corporate governance reforms. 	Link
PPM 178	Social Entrepreneurship	Learning Outcomes: After attending this course, <ol style="list-style-type: none"> 1. A group of future students will be able to create a social business venture and (Test 1, 2, and 3) 2. All the students will be able to understand & analyze ways and means to make these sustainable (Test 1, 2, and 3). 	Link
PPM 176	Health Finance	Learning outcomes: After successful completion of the course, students will be able to – Develop an exhaustive understanding of the health financing systems (Test 1 and 4) Ability to identify and analyse the sources of health financing in different economic system (Test 2) Ability to understand the different methods and extent of pooling in health financing and its impact on equity (Test 2) Develop an	Link

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		understanding in different purchasing mechanism and the best practices in the various contexts (Test 3 and 4) Ability to evaluate the health financing system and prescribe policies for better health outcome and to achieve SDGs (Test 3 and 4)	
PPM 179	Design Thinking	Learning outcomes: By the end of the course, students will be able to: 1. conceive and articulate the Design Thinking approach 2. Contextualize a complex problem in the purview of Design Thinking 3. Ideate solution based on the Design Thinking framework 4. create and present a unique solution based on Design Thinking	Link
PPM 191	International financial management	Learning outcomes: By the end of the course, participants will be able to: 1. Understand international capital and foreign exchange market 2. Identify and appraise investment opportunities in the international environment 3. Identify risk relating to exchange rate fluctuations and develop strategies to deal with them 4. Develop strategies to deal with other types of country risks associated with foreign operations 5. Express well considered opinion on issues relating to international financial management.	Link
PPM 192	Marketing Management-II	Learning outcomes: After attending this course, students will be able to: 4. Develop an understanding of the role of marketing in the success of an organization (News presentation, Mid Term exam) 5. Develop an ability to identify and assess strategic choices in marketing (Mid Term exam, End Term exam) 6. Be able to propose innovative solutions to customer needs and continuous improvement of offerings (News presentation, Group Project) 7. Be able to develop the Marketing Plan for any organization (Group Project, End Term exam)	Link
PPM 195	Brand management	Learning Outcomes 1. An understanding of Brand management decisions that must be made to build, measure and manage brand equity (Group Based Case Analysis). 2. Familiarization and learning to apply direct and indirect measures of brand equity, desired brand knowledge structures, how to choose brand elements and develop marketing programs, how to introduce and name new products, corporate perspectives and how to manage brands over time and geographical boundaries (Group Based Branding project, Class Participation). 3. Consolidating all the learning related to theory and application of Branding theory and practice (Major Examination).	Link
PPM 198	Entrepreneurship	Learning outcome: Develops Understanding of: 1. Entrepreneurship scenario in the country 2. Attractions for and challenges of an entrepreneur 3. Entrepreneurial Motivation and Frustration 4. Market Surveys: Business idea generation Lab, techniques and tools 5. Business plan – Project Viability, HR Planning, Financial Planning 6. Understanding Legal and Regulatory environment 7. Basic principles of economics and management 8. Business ethics	Link

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		<ul style="list-style-type: none"> 9. Role of Public Private Partnerships 10. MSMED Act 2006-Definitions of MSME in India and in other countries and its relevance 11. Relevance of National Skills Development Mission 12. Social entrepreneurship & EDP Cell 	
PPM 187	Production and operations management	<p>Learning Outcome: After completing the course the participants shall develop an understanding on how to create a production entity with focus on -</p> <ul style="list-style-type: none"> 1. Production Base 2. Financial (Cost) Performance . 3. Technical and Operational capabilities . 4. Human Capabilities, 	Link
PPM 169	corporate governance-challenges, evolution and future direction	<p>Learning outcomes: At the end of the course, the students would have:</p> <ul style="list-style-type: none"> 1. Developed an understanding of the conceptual framework for Business Ethics & Values and 2. appreciate ethical issues and concerns that arise while taking decisions in personal and corporate life. 3. Understood the various theoretical frameworks on which corporate governance theories are based. 4. Followed the evolution of corporate governance frameworks as they have evolved internationally. 5. Understood the specific roles, responsibilities, reporting obligations, liabilities and effectiveness of boards of directors, management, shareholders, regulators and other corporate stakeholders in good governance in organizations. 6. Appreciated the challenges that are specific to the Indian context and understand why transplanting western concepts of corporate governance to the Indian setting may not give the desired solutions. 10. Identified the direction for future corporate governance reforms. 	Link
PPM 199	Entrepreneurship development and management	<p>Learning outcome: Develops Understanding of:</p> <ul style="list-style-type: none"> 1. Entrepreneurship scenario in the country 2. Attractions for and challenges of an entrepreneur 3. Entrepreneurial Motivation and Frustration 4. Market Surveys: Business idea generation Lab, techniques and tools 5. Business plan – Project Viability, HR Planning, Financial Planning 6. Understanding Legal and Regulatory environment 7. Basic principles of economics and management 8. Business ethics 9. Role of Public Private Partnerships 10. MSMED Act 2006-Definitions of MSME in India and in other countries and its relevance 11. Relevance of National Skills Development Mission 12. Social entrepreneurship & EDP Cell 	Link
PPM 182	Community relationship	<p>Learning outcomes: At the end of the course the students will have exposure to the role and importance of local communities in process of conservation of natural resources, sustainable development and developing livelihood options. It will have implications of developing the business plans benefiting the rural masses.</p>	Link
PPM	Contemporary	Learning outcomes:	

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186	issues in change management	Students, who successfully complete this course, should be able to: L1. Understand the process of change and organizational development. L2. Diagnose problems and identify issues and opportunities for change. L3. To apply some Human Process Interventions. L4. To be a change facilitator	
PPM 108	Marketing of services	Learning outcomes By the end of the course, the student will be able to: 1. Develop an exhaustive understanding of the usage of MIS in organizations. 2. Demonstrate an ability to explain the classifications of MIS and linking MIS to business strategy for strategic advantage. 3. Develop an ability to assess the requirements of MIS design in different organizations including functions and issues 5. at each stage of system development.	Link
PPM 155	Project development and management	Learning outcomes : By end of the course, students will; 1. Appraise and understand the difficulties and dilemmas that project managers face in the implementation of programmes and projects aimed at bringing about changes. (All the tests) 2. Develop a comprehensive understanding of the various approaches and tools(including LFA) required for effective change management. (All the tests) 3. Develop critical understanding of the organisational and human resource management challenges encountered while implementing sustainable development programmes and projects (All the tests)	Link
PPM 157	Business Ethics	Learning outcomes: The course will encourage the students to reason about issues from multiple perspectives. Further it will: 1. Expose the students to a diverse and important set of ethical systems 2. Increase the knowledge and awareness on ethics and ethical behavior 3. Apply ethical systems to specific business problems	Link
PPM 102	Major Project	Learning outcomes 1. Develop an understanding of problems/challenges in contemporary areas of business, management, finance and economics 2. To gain necessary skills through on-job training on various aspects such as problem identification, analyse data, report writing, team-work etc. 5. To effectively communicate and demonstrate the learning through structured thesis/dissertation and oral presentation	Link
PPM 154	Customer relationship management	Learning outcomes: After the course, the students should be able to appreciate the importance of CRM in today's competitive environment. The students would get a deeper insight to Business and technology issues pertaining to the implementation of CRM projects. They should also be able to analyse current problems and reasons for CRM failures and the cases will help them to get a better understanding of implementation issues.	Link
PPM 166	Operation and management of power systems	Learning Outcome: After completing the course the participants shall develop an understanding on how to create a production	Link

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		entity with focus on - <ol style="list-style-type: none"> 1. Production Base 2. Financial (Cost) Performance . 3. Technical and Operational capabilities . 4. Human Capabilities, 	
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Course code	Course name	Learning Outcome	Link
PPM 102	Major Project	<ol style="list-style-type: none"> 1. Develop an understanding of problems/challenges in contemporary areas of business, management, finance and economics 2. To gain necessary skills through on-job training on various aspects such as problem identification, analyse data, report writing, team-work etc. 3. To effectively communicate and demonstrate the learning through structured thesis/dissertation and oral presentation 	Link
PPM 154	Customer relationship management	After the course, the students should be able to appreciate the importance of CRM in today's competitive environment. The students would get a deeper insight to Business and technology issues pertaining to the implementation of CRM projects. They should also be able to analyse current problems and reasons for CRM failures and the cases will help them to get a better understanding of implementation issues.	Link
PPM 138	Supply chain management	<ol style="list-style-type: none"> 1. The student should be able to identify and appreciate the application of a right supply chain 2. The student should be able to suggest/design a supply chain appropriate to a simple economic environment 3. The student should be able to suggest corrective action in case of an ineffective supply chain. 	Link
PPM 166	Operation and management of power systems	After completing the course the participants shall develop an understanding on how to create a production entity with focus on - <ol style="list-style-type: none"> 1. Production Base 2. Financial (Cost) Performance . 3. Technical and Operational capabilities . 4. Human Capabilities, 	Link
BSI 104	Major Project	Learning outcome: <ol style="list-style-type: none"> 1. Develop an understanding of problems/challenges in contemporary areas of Infrastructure-business; 2. To gain necessary skills through on-job training on various aspects such as problem identification, analysis of data, report writing, teamwork etc.o effectively communicate and demonstrate the learning through structured thesis/dissertation and oral presentation 	Link
BSI 141	Contracts Law and management (negotiation, management and conflict resolution)	<ol style="list-style-type: none"> 1. Students will learn about the fine print of contracts law applicable in India and also about international contracts 2. Will able to understand the requirements of specific contacts clauses that are important in structuring the contracts 3. Develop skills with respect to management and negotiation of contacts 4. Able to appreciate dispute settlement in contracts. 	Link
BSI145	Integrated impact assessment	<ol style="list-style-type: none"> 1. After attending the course the students shall have acquired knowledge to conduct integrated impact assessment, so that they are able to identify sustainable modes of environmental operation. 2. Students would be able to understand the key elements of EIA and its processes by which they can apply to relevant projects. 	Link

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		3. Able to understand various tools and techniques used in identification and analysis of impacts suggest appropriate mitigation measures and prepare environmental management plans.	
BSI 151	Business laws and infrastructure projects	<ol style="list-style-type: none"> 1. Learn how infrastructure sector operates within a defined legal framework 2. Developing skills through case studies to critically look at projects that have high legal compliance 3. Learn the institutional systems like RBI, Competition Commission, SEBI and other regulatory bodies play a role in Infrastructure business 4. Appreciate the kind of dispute settlement mechanisms that exist and how to organize business transaction that minimizes disputes 	Link
BSI 153	Environmental and social laws	<ol style="list-style-type: none"> 1. The students will be able to understand the laws applicable to the infrastructure sector 2. The students would have acquired the skill to interpret the relevant legislation and judicial pronouncements. 	Link
PPM 156	Project planning and management	<ol style="list-style-type: none"> 1. Manage the scope, cost, timing, and quality of the project, at all times focused on project success as defined by project stakeholders 2. Align the project to the organization's strategic plans and business justification throughout its lifecycle. 3. Identify project goals, constraints, deliverables, performance criteria, control needs, and resource requirements in consultation with stakeholders 4. Implement project management knowledge, processes, lifecycle and the embodied concepts, tools and techniques in order to achieve project success 5. Adapt projects in response to issues that arise internally and externally 6. Interact with team and stakeholders in a professional manner, respecting differences, to ensure a collaborative project environment 7. Utilize technology tools for communication, collaboration, information management, and decision support. 8. Implement general business concepts, practices, and tools to facilitate project success 9. Apply appropriate legal and ethical standards 10. Adapt project management practices to meet the needs of stakeholders from multiple sectors of the economy (i.e. consulting, government, arts, media, and charity organizations) 11. Apply project management practices to the launch of new programs, initiatives, products, services, and events relative to the needs of stakeholders 12. Appraise the role of project management in organization change 	Link
BSI 157	Business Ethics	<p>The course will encourage the students to reason out issues from multiple perspectives. Further it will:</p> <ol style="list-style-type: none"> 1. Expose the students to adverse and important set of ethical systems 2. Increase the knowledge and awareness on ethics and ethical behaviour 3. apply ethical systems to specific business problems 	Link
BSI 161	Public private partnership-challenges and opportunities	<ol style="list-style-type: none"> 1. PPP as a mechanism to attract private investment for development and delivery of infrastructure and services 2. Risk identification, risk sharing and risk mitigation for PPP projects 3. Contracting for and contract management of PPP contracts during their lives 4. Financing instruments available for PPP projects 	Link

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		<ol style="list-style-type: none"> 5. Role of and initiatives by the government in promoting and supporting PPP projects 6. Capacities amongst stakeholders to develop and implement PPP projects 	
BSI 167	Legal & regulatory aspects of infrastructure	<ol style="list-style-type: none"> 1. The students will be able to understand the laws applicable to the infrastructure sector 2. The students would have acquired the skill to interpret elegant legislation and judicial pronouncements. 	Link
BSI 181	Bidding system management	<p>Learning Outcome:</p> <ol style="list-style-type: none"> 1. Managing the market approach: explain the various market approaches as described in the Market 2. Guidelines describing how to request and receive offers 3. Selecting the right supplier 4. Describe how to establish the evaluation criteria 5. Plan and undertake an evaluation 6. Describe how to validate suppliers claims 7. <input type="checkbox"/> Choosing the preferred supplier and gaining purchase approval 	Link
PPM 183	Strategic Planning	<ol style="list-style-type: none"> 1. To familiarise the students with factors affecting the infrastructure firm and industry in long run and also with the tools and techniques of external as well as internal environmental analysis 2. To develop their analytical as well as decision-making skills to formulate and evaluate strategy with reference to infrastructure projects under a given set of environmental factors 3. To develop a practical understanding of strategy formulation and implementation process 4. To develop an understanding of role of stakeholders' analysis and engagement in infrastructure planning and management 	Link
BSI 185	Risk analysis and implementation management	<ol style="list-style-type: none"> 1. An understanding of the risk management processes and techniques in today's context 2. An understanding of project risks and emerging risks in infrastructure financing 3. The capability to be able to assess and suggest ways and means to address the practical challenges around 4. the financial estimation of risk in infrastructure projects. 	Link
BSI 187	Introduction to infrastructure business	<p>Develop an understanding of: Definition and classification of various kinds of infrastructure Links between development and economic growth with infrastructure requirements Issues related to infrastructure development in India and current policy imperatives to hasten its growth Infrastructure development internationally with a particular reference to developing economies Sustainability issues and need for resource efficiency in infrastructure business</p>	Link
BSI 122	Macroeconomic Environment	<p>After successful completion of the course, students will be able to –</p> <ol style="list-style-type: none"> 1. Interpret and measure the key Macroeconomic variables (Test-1) 2. Explain the circular flow of income (Test-1) 3. Describe the roles of fiscal and monetary policy in an economy (Test 1 & 2) 4. Understand the concept of business cycle (Test-3 & 4) 5. Explain and uses of the growth models (Test-4) 6. Analyse the factors influencing the balance of payments and the exchange rate (Test 3 & 4) 7. Explain and understand the mechanisms of international trade (Test 2, 3 & 4) 	Link

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BSI 126	Corporate Finance	Developing: <ol style="list-style-type: none"> 1. An understanding of business finance; 2. Requisite skills needed for financial decision making; and 3. Knowledge about infrastructure financing 	Link
BSI 138	Logistics and Supply Chain Management	The course development focuses on logistics as a support system to the infrastructure industries and supply chains. A large portion of the course therefore deals with transportation, warehousing, integration, outsourcing of logistics such as 3PL, 4PL, performance in logistics and integration. Core subjects of supply chain, as inventory management, processing, lead time controls find only a connective mention. The course has a basic learning outcome of introducing the business management students with a specialization in infrastructure to the fundamentals of logistics management	Link
BSI 156	Project Planning and Management	<ol style="list-style-type: none"> 1. Manage the scope, cost, timing, and quality of the project, at all times focused on project success as defined 2. by project stakeholders 3. Align the project to the organization's strategic plans and business justification throughout its lifecycle. 4. Identify project goals, constraints, deliverables, performance criteria, control needs, and resource 5. requirements in consultation with stakeholders 6. Implement project management knowledge, processes, lifecycle and the embodied concepts, tools and 7. techniques in order to achieve project success 8. Adapt projects in response to issues that arise internally and externally 9. Interact with team and stakeholders in a professional manner, respecting differences, to ensure a 10. collaborative project environment 11. Utilize technology tools for communication, collaboration, information management, and decision support. 12. Implement general business concepts, practices, and tools to facilitate project success 13. Apply appropriate legal and ethical standards 14. Adapt project management practices to meet the needs of stakeholders from multiple sectors of the economy 15. (i.e. consulting, government, arts, media, and charity organizations) 16. Apply project management practices to the launch of new programs, initiatives, products, services, and 17. events relative to the needs of stakeholders 18. <input type="checkbox"/> Appraise the role of project management in organization change 	Link
BSI 157	Business Ethics	The course will encourage the students to reason out issues from multiple perspectives. Further it will: <ol style="list-style-type: none"> 1. expose the students to adverse and important set of ethical systems 2. increase the knowledge and awareness one this and ethical behaviour 3. apply ethical systems to specific business problems 	Link
BSI 181	Bidding System Management	<ol style="list-style-type: none"> 1. Managing the market approach: explain the various market approaches as described in the Market 2. Guidelines describing how to request and receive offers 3. Selecting the right supplier 4. Describe how to establish the evaluation criteria 5. Plan and undertake an evaluation 6. Describe how to validate suppliers claims 7. Choosing the preferred supplier and gaining purchase approval 	Link
BSI	Infrastructure	By the end of the course, students are expected to be able to:	Link

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182	Organizations and HR	<ol style="list-style-type: none"> 1. demonstrate a general knowledge framework and understanding of key functions in management 2. as applied in practice; 3. identify and appreciate issues related to human resource management in organizations; and 4. have some understanding of individual and group behaviour to work effectively with others. 	
BSI 183	Strategic Planning	<ol style="list-style-type: none"> 1. To familiarise the students with factors affecting the infrastructure firm and industry in long run and also with the tools and techniques of external as well as internal environmental analysis 2. To develop their analytical as well as decision-making skills to formulate and evaluate strategy with reference to infrastructure projects under a given set of environmental factors 3. To develop a practical understanding of strategy formulation and implementation process 4. To develop an understanding of role of stakeholders' analysis and engagement in infrastructure planning and management 	Link
BSI 184	Quality Management	Develop an understanding of: <ol style="list-style-type: none"> 1. Total Quality Management: concept, principles and tools 2. statistical quality control 3. ISO certifications 	Link
BSI 185	Risk analysis and Implementation Management	<ol style="list-style-type: none"> 1. An understanding of the risk management processes and techniques in today's context 2. An understanding of project risks and emerging risks in infrastructure financing 3. The capability to be able to assess and suggest ways and means to address the practical challenges around the financial estimation of risk in infrastructure projects. 	Link
BSI 103	Strategic communication and stakeholder engagement	Develop an understanding of: <ol style="list-style-type: none"> 1. managerial functions, roles and skills with special reference to infrastructure business; 2. individual and group behaviour issues in organizations; 3. Concepts, and tools for human resource management. 	Link
BSI 124	Economics of infrastructure and pricing strategies	After successful completion of the course, students will be able to – <ol style="list-style-type: none"> 1. Interpret the basic problems of an economy and situate the importance of infrastructure 2. development in the context 3. Explain the concept of production and costs 4. Describe the role of investment in infrastructure development 5. Explain the role of costs in infrastructure development 6. Analyse the pricing strategies for infrastructure projects 7. Describe the role of government in developing infrastructure 8. Explain the effect of new economic policy on infrastructure development 	Link
BSI 127	Infrastructure project finance	By the end of the course, students will be able to: <ol style="list-style-type: none"> 1. Understand financing techniques for infrastructure projects 2. Exercise critical judgement in forecasting and structuring infrastructure project finance transactions. Critically assess problems encountered in financing infrastructure projects 	Link
BSI 128	Corporate accounting and reporting	By the end of the course, students are expected to learn: <ol style="list-style-type: none"> 1. Basics of accounting; 2. How the accounting information does help managerial decision making process; and 3. How to analyse the performance vis-à-vis financial health of the firm. 	Link

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BSI 143	Contract laws	<ol style="list-style-type: none"> 1. Students will learn about the fine print of contracts law applicable in India and also about international contracts 2. Will able to understand the requirements of specific contacts clauses that are important in structuring the contracts 3. Develop skills with respect to management and negotiation of contacts 4. Able to appreciate dispute settlement in contracts. 	Link
BSI 171	Management information systems	<p>By the end of the course, the student will be able to:</p> <ol style="list-style-type: none"> 1. Develop an exhaustive understanding of the usage of MIS in organizations. 2. Demonstrate an ability to explain the classifications of MIS and linking MIS to business strategy for strategic advantage. 3. Develop an ability to assess the requirements of MIS design in different organizations including functions and issues 5. at each stage of system development. 	Link
PPM 157	Business Ethics	<p>The course will encourage the students to reason about issues from multiple perspectives. Further it will:</p> <ol style="list-style-type: none"> 1. Expose the students to a diverse and important set of ethical systems 2. Increase the knowledge and awareness on ethics and ethical behavior 3. Apply ethical systems to specific business problems 	Link
PPM 182	Community relationship	<p>At the end of the course the students will have exposure to the role and importance of local communities in process of conservation of natural resources, sustainable development and developing livelihood options. It will have implications of developing the business plans benefiting the rural masses.</p>	Link
PPM 199	Entrepreneurship development and management	<p>Develops Understanding of:</p> <ol style="list-style-type: none"> 1. Entrepreneurship scenario in the country 2. Attractions for and challenges of an entrepreneur 3. Entrepreneurial Motivation and Frustration 4. Market Surveys: Business idea generation Lab, techniques and tools 5. Business plan – Project Viability, HR Planning, Financial Planning 6. Understanding Legal and Regulatory environment 7. Basic principles of economics and management 8. Business ethics 9. Role of Public Private Partnerships 10. MSMED Act 2006-Definitions of MSME in India and in other countries and its relevance 11. Relevance of National Skills Development Mission 12. Social entrepreneurship & EDP Cell 	Link
BSI 102	Minor Project	<ol style="list-style-type: none"> 1. Develop an understanding of problems/challenges in contemporary areas of business, management, finance and economics 2. To gain necessary skills through on-job training on various aspects such as problem identification, analyse data, report writing, team-work etc. 3. To effectively communicate and demonstrate the learning through structured thesis/dissertation and oral Presentation 	Link
BSI 103	Strategic communication and stakeholder engagement	<p>Develop an understanding of:</p> <ol style="list-style-type: none"> 1. managerial functions, roles and skills with special reference to infrastructure business; 2. individual and group behaviour issues in organizations; 	Link

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		3. Concepts, and tools for human resource management.	
BSI 132	Innovation and change management for infrastructure projects	Students, who successfully complete this course, should be able to: <ol style="list-style-type: none"> 1. Understand and appreciate innovation, processes involved and its criticality for Business. 2. Appreciate the link between Innovation, Technology, Research & Development and Firm 3. Strategy 4. Apply their knowledge in the domain to facilitate and leverage innovation in their respective 5. fields 6. Understand the process of change and organizational development 7. Diagnose problems and identify issues and opportunities for change 	Link
BSI 145	Integrated impact assessment	<ol style="list-style-type: none"> 1. After attending the course the students shall have acquired knowledge to conduct integrated impact assessment, so That they are able to identify sustainable modes of environmental operation. 2. Students would be able to understand the key elements of EIA and its processes by which they can apply to Relevant projects. 3. Able to understand various tools and techniques used in identification and analysis of impacts suggest appropriate Mitigation measures and prepare environmental management plans. 	Link
PPM 109	Business to business marketing	After completion of the course, the students will be able to: <ol style="list-style-type: none"> 1. Adapt the market planning process for B2B markets (Minor exam 1 and 2, Article presentations) 2. Develop the marketing strategies for any firm for its B2B marketing (Case study and Assignments) 3. Fine-tune the marketing strategies for the B2G dealings for a firm (End Term exam) 4. Apply various new technologies in the entire B2B marketing-mix of a firm (Article presentations, End Term exam) 	Link
PPM 177	Corporate governance	At the end of the course, the students would have: <ol style="list-style-type: none"> 1. Developed an understanding of the conceptual framework for Business Ethics & Values and 2. appreciate ethical issues and concerns that arise while taking decisions in personal and corporate life. 3. Understood the various theoretical frameworks on which corporate governance theories are based. 4. Followed the evolution of corporate governance frameworks as they have evolved internationally. 5. Understood the specific roles, responsibilities, reporting obligations, liabilities and effectiveness of boards 6. of directors, management, shareholders, regulators and other corporate stakeholders in good governance in 7. organizations. 8. Appreciated the challenges that are specific to the Indian context and understand why transplanting 9. western concepts of corporate governance to the Indian setting may not give the desired solutions. 10. Identified the direction for future corporate governance reforms. 	Link
PPM 195	Brand management	<ol style="list-style-type: none"> 1. An understanding of Brand management decisions that must be made to build, measure and manage brand equity (Group Based Case Analysis). 2. Familiarization and learning to apply direct and indirect measures of brand equity, desired brand knowledge structures, how to choose brand elements and develop marketing 	Link

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		<p>programs, how to introduce and name new products, corporate perspectives and how to manage brands over time and geographical boundaries (Group Based Branding project, Class Participation).</p> <p>3. Consolidating all the learning related to theory and application of Branding theory and practice (Major Examination).</p>	
PPM 187	Production and operations management	<p>After completing the course the participants shall develop an understanding on how to create a production entity with focus on -</p> <ol style="list-style-type: none"> 1. Production Base 2. Financial (Cost) Performance . 3. Technical and Operational capabilities . 4. Human Capabilities, 	Link
PPM 133A	Energy policy and management	<p>Learning Outcomes:</p> <ol style="list-style-type: none"> 1. Develop an understand the reserves of various energy resources and the supply scenario 2. Ability to understand the extent and importance of energy in business and management. 3. Develop the ability to analyse the avenues for reduction in energy demand through various measures like improving energy efficiency, demand side management etc. 	Link
PPM 100	Minor Project	<ol style="list-style-type: none"> 1. Develop an understanding of problems/challenges in contemporary areas of business, management, finance and economics 2. To gain necessary skills through on-job training on various aspects such as problem identification, analyse data, report writing, team-work etc. 3. To effectively communicate and demonstrate the learning through structured thesis/dissertation and oral 4. Presentation 	Link
PPM 104	Consumer behaviour	<p>Upon successful completion, students will have the knowledge and skills to:</p> <ol style="list-style-type: none"> 1. Identify the major influences in consumer behaviour. 2. Distinguish between different consumer behaviour influences and their relationships. 3. Establish the relevance of consumer behaviour theories and concepts to marketing decisions. 4. Implement appropriate combinations of theories and concepts. 5. Recognise social and ethical implications of marketing actions on consumer behaviour. 6. Use most appropriate techniques to apply market solutions 	Link
PPM 125	Financial intermediaries, institutions and regulations	<p>After successful completion of the course, the students would be able to -</p> <ol style="list-style-type: none"> 1. Develop a comprehensive understanding of the financial system & institutions of India. 2. Analyse the trends of Indian financial markets and functioning of its various segments. 3. Develop a holistic perspective about all the financial institutions and their economic significance. 	Link
PPM 191	International financial management	<p>By the end of the course, participants will be able to:</p> <ol style="list-style-type: none"> 1. Understand international capital and foreign exchange market 2. Identify and appraise investment opportunities in the international environment 3. Identify risk relating to exchange rate fluctuations and develop strategies to deal with them 4. Develop strategies to deal with other types of country risks associated with foreign operations 5. Express well considered opinion on issues relating to international financial management. 	Link

2.6.1.B

PPM 192	Marketing Management-II	After attending this course, students will be able to: <ol style="list-style-type: none"> 1. Develop an understanding of the role of marketing in the success of an organization (News presentation, Mid Term exam) 2. Develop an ability to identify and assess strategic choices in marketing (Mid Term exam, End Term exam) 3. Be able to propose innovative solutions to customer needs and continuous improvement of offerings (News presentation, Group Project) 4. Be able to develop the Marketing Plan for any organization (Group Project, End Term exam) 	Link
PPM 169	corporate governance- challenges, evolution and future direction	At the end of the course, the students would have: <ol style="list-style-type: none"> 1. Developed an understanding of the conceptual framework for Business Ethics & Values and 2. Appreciate ethical issues and concerns that arise while taking decisions in personal and corporate life. 3. Understood the various theoretical frameworks on which corporate governance theories are based. 4. Followed the evolution of corporate governance frameworks as they have evolved internationally. 5. Understood the specific roles, responsibilities, reporting obligations, liabilities and effectiveness of boards of directors, management, shareholders, regulators and other corporate stakeholders in good governance in organizations. 6. Appreciated the challenges that are specific to the Indian context and understand why transplanting western concepts of corporate governance to the Indian setting may not give the desired solutions. 10. Identified the direction for future corporate governance reforms. 	Link
PPM 108	Marketing of services	By the end of the course, the student will be able to: <ol style="list-style-type: none"> 1. Develop an exhaustive understanding of the usage of MIS in organizations. 2. Demonstrate an ability to explain the classifications of MIS and linking MIS to business strategy for strategic advantage. 3. Develop an ability to assess the requirements of MIS design in different organizations including functions and issues 5. at each stage of system development. 	Link
PPM 131	Oil and Gas Business	At the end of the course it is expected that the students will have the basic knowledge of the various aspects of the oil & gas industry including the challenges being face	Link
PPM 155	Project development and management	By end of the course, students will; <ol style="list-style-type: none"> 1. Appraise and understand the difficulties and dilemmas that project managers face in the implementation of programmes and projects aimed at bringing about changes. (All the tests) 2. Develop a comprehensive understanding of the various approaches and tools(including LFA) required for effective change management. (All the tests) 3. Develop critical understanding of the organisational and human resource management challenges encountered while implementing sustainable development programmes and projects (All the tests) 	Link
BSI 123	Financial intermediaries, institutions and	After successful completion of the course, the students would be able to - <ol style="list-style-type: none"> 1. Develop a comprehensive understanding of the financial 	Link

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	markets	<p>system & institutions of India.</p> <ol style="list-style-type: none"> Analyse the trends of Indian financial markets and functioning of its various segments. Develop a holistic perspective about all the financial institutions and their economic significance. 	
BSI 175	Statistical methods for management	<p>After successful completion of the course, students will be able to –</p> <ol style="list-style-type: none"> Understand the fundamental principles of statistics and data analysis (Test 1,2 and 3) Understand the principles, techniques and approaches used for statistical inferences (Test 3 & 4) Apply statistical concepts to business and economic models (All Tests) Solve problems of importance using statistical techniques (All Tests) Application of data analysis for decision making (All Tests) 	Link
BSI 102	Minor Project	<ol style="list-style-type: none"> Develop an understanding of problems/challenges in contemporary areas of business, management, finance and economics To gain necessary skills through on-job training on various aspects such as problem identification, analyse data, report writing, team-work etc. To effectively communicate and demonstrate the learning through structured thesis/dissertation and oral Presentation 	Link
BSI 125	Accounting and finance for sustainability	<p>After successful completion of the course, the students will be able to:</p> <ol style="list-style-type: none"> Develop a complete understanding of sustainable financing market systems, the tools and instruments used for financing sustainable development. Have an indepth knowledge on the challenges pertaining to sustainable and ESG financing and the role of several stakeholders including central banks, financial supervisory authorities, national and multilateral development banks, corporate banks, and institutional investors to fund sustainable development efforts. Develop a thorough understanding on the nature of risks associated with sustainable financing and some of the accounting tools to address such risks. Have a thorough understanding of the international climate change negotiations and India's role in climate talks. Develop a fair understanding of financial policy instruments and initiatives with regard to integrating climate change and sustainability into financial policy and supervisory frameworks. 	Link

Course code	Course name	Learning Outcome	Link
BBP 121	Plant biotechnology and crop improvement	<ol style="list-style-type: none"> An understanding of plant tissue culture techniques that can be employed for the production of superior quality plants. Ability to rationalize and develop strategies for incorporating novel traits in plants through genetic engineering. Appreciation of health and environmental concerns and understanding of regulations related to commercial release of transgenic crops. 	Link
BBP 155	Principles of genetic engineering and recombinant DNA technology	<ol style="list-style-type: none"> Technical know-how on versatile techniques in recombinant DNA technology. An understanding on application of genetic engineering techniques in basic and applied experimental biology. 	Link

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		3. Proficiency in designing and conducting experiments involving genetic manipulation.	
BBP 101	Plant biotechnology laboratory - Part 1	<ol style="list-style-type: none"> 1. Ability to conduct experiments with adequate safety precautions. 2. Capacity to compare and evaluate various approaches in solving a given experimental problem. 3. Ability to design and interpret molecular biology experiments. 4. Proficiency in defining a research problem, drawing logical inferences from results and documenting outcomes in systematic manner. 	Link
BBP 158	Conceptual foundations of molecular biology	<ol style="list-style-type: none"> 1. Recognition of crucial advances in molecular biology based on model systems. 2. Knowledge of different modes and levels of the regulation of gene regulation. 	Link
BBP 154	Concepts in biochemistry	<ol style="list-style-type: none"> 1. An understanding of the basic components involved in cell survival. 2. An insight into macromolecular organization and its functional importance. 3. A detailed analysis of metabolic pathways, transduction and transport mechanisms vital for living systems. Grasp of molecular networks and their interplay. 4. The ability to understand and apply the energy transformation mechanisms and laws governing the transformations. 	Link
BBP 111	Bioanalytical techniques	<ol style="list-style-type: none"> 1. To be able to use selected analytical techniques. 2. Familiarity with working principals, tools and techniques of analytical techniques. 3. To understand the strengths, limitations and creative use of techniques for problem-solving. 	Link
BBP 171	Bioethics and public awareness	<ol style="list-style-type: none"> 1. Familiarity with historical background of evolution of ethics and public awareness. 2. Awareness about ethical issues related to Genetically Modified Crops. Pros and Cons of Genetically Modified Crops globally and with special reference to scenario in India. 3. Knowledge related to principles and practice of ethics in Agricultural, Medical, Pharmaceutical, nutraceutical and industrial biotechnology. 4. Development of presentation skills, scientific communications and able to designing ethically sound research proposals for showcasing research/ideas. 5. Knowledge of all stakeholders Academia, Industry, Government, Regulatory Bodies, Collaborators etc. 6. To be able to blend and balance professionalism and ethics in personal Interactions and workplace. 	Link
BBP 103	Plant biotechnology laboratory - Part 3	<ol style="list-style-type: none"> 1. Experimental evaluation of dynamic plant physiological responses in terms of quantifiable biochemical and proteomic parameters. 2. Ability to employ <i>in-silico</i> tools to retrieve, assimilate and analyze secondary molecular information. 3. Development of an integrative approach towards designing an experiment, execution to generate primary data, analysis and interpretation of the results. 4. Ability to analyse and document the protein characterization methods either biochemically or by <i>in-silico</i> methods. 5. Development of understanding a biological problem using proteomic and physiological tools for deciphering the molecular mechanisms in stress. 	Link

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BBP 141	Plant biotechnology management and regulatory issues	<ol style="list-style-type: none"> 1. Awareness about the legal systems and the various institutions in a system. 2. Familiarity with the regulation of Biotechnology and the related aspects. 3. Understanding the theoretical basis of Intellectual property protection and the importance of the same. 4. Understanding the criteria for a patent, related procedure in making an application for the same and the ways in which it can be managed. 	Link
BBP 143	Genomics and molecular genetics	<ol style="list-style-type: none"> 1. An understanding of the methods for generation of large-scale genomic information and its analysis. 2. A detailed knowledge of current methodologies used for transcriptomic and proteomic analyses and their applications in functional genomics. 3. An understanding of strengths and constraints of various methodologies and ability to design optimal research strategies. 4. An integrative problem-solving approach towards understanding biological systems. 	Link
BBP 173	Bioinformatics and computational biology	<ol style="list-style-type: none"> 1. An understanding of data analysis approaches. 2. The students will be familiar with the application of molecular phylogenetic analysis and structural prediction approaches. 3. Ability to perform molecular modeling and simulation. 	Link
BBP 174	Bioinformatics and computational biology - Part I	<ol style="list-style-type: none"> 1. On the completion of this course students shall have knowledge to identify, adapt and develop <i>in silico</i> models appropriate to the specific study of different biological projects. 2. The students will be familiar with the use of bioinformatics software, tools in their area of research. 	Link
BBP 102	Plant biotechnology laboratory - Part 2	<ol style="list-style-type: none"> 1. Proficiency in PTC techniques. 2. Ability to adapt and apply PTC techniques to research problems in plant biology. 3. Ability to understand and analyse enzymatic reactions in living systems. 4. Ability to grasp the molecular interactions and mechanistic details of various immune technology methods. 	Link
BBP 130	Immunochemistry	<ol style="list-style-type: none"> 1. A basic understanding of the various immunological tools and techniques frequently used for studying molecular events in a plant system. 2. An exposure to advances in immunochemistry and available alternatives for examining molecular mechanisms in plants. 3. An ability to utilize the tools and techniques for deciphering the biochemical interactions leading to physiological phenomena at the cellular level. 	Link
BBP 150	Molecular markers and breeding	<ol style="list-style-type: none"> 1. An understanding on versatile research approaches employed for genome elucidation. 2. Ability to provide a molecular explanation for phenotype oriented breeding practices and strategies. 3. Ability to rationalize the selection of a suitable genotyping tool for applications including assessment of molecular breeding, taxonomy, conservation genetics, gene flow and quantitative genetics. 	Link
BBP 112	Statistics for the life sciences	<ol style="list-style-type: none"> 1. Distinguish between a deterministic and stochastic process and situations under which the statistical methods are to be applied 2. Develop an intuitive statistical sense 3. Analyse, model and quantify uncertainty 4. Extract information and draw scientific inference from the data to solve problems related to life sciences 5. Develop probabilistic models for predicting outcomes of 	Link

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		stochastic processes related to life sciences 6. Apply the concepts of inferential statistics and to take informed decisions under conditions of uncertainty	
BBP 156	Molecular plant physiology and metabolism	1. A pervasive understanding on the kingdoms of biomolecules, metabolites and pathways that are the prerequisites and consequences of physiological phenomenon for further manipulations. 2. Acquaintance with mechanistic view on the plant environment interactions. 3. Development of integrative approach for visions in biological problems.	Link
BBP 114	Molecular cell biology - from genes to communities	1. Detailed knowledge of specific aspects of model living systems in consonance with topics in the outline. 2. Ability to critically analyze and synthesize primary data to develop coherent models. 3. Understanding implicit evolutionary arguments underlying the analysis of organisms from the genetic to community levels.	Link
BBP113	Nanomaterials: Introduction and applications	1. Familiarity with working principles, tools and techniques in the field of nanomaterials. 2. Understanding of the strengths, limitations and potential uses of nanomaterials.	Link
BBP 104	Major project	1. Students will be able to- - define a research problem - design appropriate experiments - undertake data collection and analyse - draw logical inferences- report outcomes in a systematic manner -Innovate solutions to societal problems 2. Students will be able to work independently and as part of a team. 3. Students will be able to make effective presentations before a diverse audience. 4. Students will acquire transferable problem-solving skills using multi-disciplinary approaches	Link

Course code	Course name	Learning Outcome	Link
PPS 105	Development Economics	By the end of the course, the students shall be able to: <ul style="list-style-type: none"> To familiarize the participants with competing normative theories as candidates for helping identify public policy objectives in particular contexts To familiarize the participants with meta-ethical criteria for evaluating competing normative hypotheses To create the ability for ethical reasoning and analysis needed for mature participation in society's continuing debates over policy issues. 	Link
PPS 108	Organisational Behaviour	On successful completion of this course, students will be able to: <ul style="list-style-type: none"> Demonstrate a thorough knowledge and understanding of organisational behaviour. Collaboratively and autonomously research, analyse and evaluate information from a wide variety of sources. Apply relevant contemporary theories, concepts and models in order to analyse organisational environments, cases and issues. Communicate their findings clearly and effectively using a variety of media. 	Link
PPS 146	Fundamental Paradigms of	The expected learning outcome is that the student would be able to apply some of the concepts taught in class to real-life problems/	Link

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	Economics	decision-making in their sphere of work.	
PPS 161	Public Policy Processes and Institutions	By the end of the course, student will be able to: <ul style="list-style-type: none"> To form the foundation for seminar course on public policy in the subsequent semester by raising some important issues that highlight interdependencies in society and role of the state. To understand these nuances and its implications for society. 	Link
PPS 171	Methodologies I: Statistical Analysis	<ul style="list-style-type: none"> Able to understand and interpret empirical results relevant for policy making To become proficient in the use of software like STATA 	Link
PPS 181	Introduction to Policy Formulation Paper	No Course outline	NA
PPS 106	Society, Development and Social Policy	By the end of the course, the students will be able to: <ul style="list-style-type: none"> Develop an understanding of structure of human society and key social institutions Be able to look at current public policy issues with an anthropological-sociological perspective Have an understanding of some key concepts in social policy debates, such as needs, rights and responsibilities Be aware of how social inequalities impact the outcomes of development processes <p>Appreciate the need based policy frameworks that aim at bringing social equality</p>	Link
PPS 109	Strategic Communication for Public Policy	No course outline	NA
PPS 127	Sustainable Consumption and Production	On successful completion of this course, the students shall: <ul style="list-style-type: none"> Have an improved understanding of SCP and interrelationship between sustainable consumption and sustainable production Be able to compare and contrast effective applications and business case for SCP in sustainable development with reference to specific countries and economic sectors Be able to examine the potential synergy of SCP with existing plans and policies Have learned the significance of various policy instruments, strategy options and institutional arrangements to mainstream SCP for effective sustainable development governance 	Link
PPS 131	Perspectives in Sustainability	By the end of the course students should: <ul style="list-style-type: none"> command comprehensive knowledge of the subject matter of the course, and a critical understanding of the relevant theory and practice of sustainable development 	Link
PPS 148	Macroeconomics for Public Policy	On completion of this course, the students would: <ol style="list-style-type: none"> Have acquired an understanding of the basic macroeconomic concepts and theories Have developed an ability to connect the macroeconomic events with the theories 	Link
PPS 160	Policy Formulation Paper	No Course outline	NA
PPS 172	Methodologies II: Decision-Making in Public Policy - Analytical and Empirical Tools	By the end of the course, it is expected that the students will develop: <ul style="list-style-type: none"> Ability to appreciate various decision making tools and use the relevant tool in a specific public policy context Ability to appreciate analytical literature and develop a critical and rigorous approach to policy making 	Link
PPS 133	Society and development policy	Having studied the unit, the students will be able to: <ul style="list-style-type: none"> Show a critical understanding of key social issues associated with the processes of Development; Recognise the different macro, meso and micro forces in the 	Link

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		<p>making of Development policies;</p> <ul style="list-style-type: none"> ▪ Show a critical understanding of the relationship between social forces and Development; 	
PPS 127	Sustainable consumption and production	<p>On successful completion of this course, the students shall,</p> <ul style="list-style-type: none"> ▪ Have an improved understanding of SCP and interrelationship between sustainable consumption and sustainable production ▪ Be able to compare and contrast effective applications and business case for SCP in sustainable development with reference to specific countries and economic sectors ▪ Be able to examine the potential synergy of SCP with existing plans and policies ▪ • Have learned the significance of various policy instruments, strategy options and institutional arrangements to mainstream SCP for effective sustainable development governance 	Link
PPS 175	Introduction to sustainable development	<p>At the end of the course, students would be able to:</p> <ul style="list-style-type: none"> ▪ Appreciate the complex nature of social and environmental challenges faced by the world ▪ Understand problems from interdisciplinary perspective ▪ Think of integrated solutions to the current problems 	Link
PPS 183	India and the world	<p>On completion of this course, the students would:</p> <ul style="list-style-type: none"> ▪ Have acquired an understanding of the concept and theoretical background of globalization, climate and security geo-politics and the role of India in the process ▪ Have developed critical thinking on the global discourse on trade, climate change and geo-politics including the role global institutions and agreements and their impacts on Indian policies and institutions 	Link
PPS 134	Industrial development and sustainability	<ul style="list-style-type: none"> ▪ Developing objective perspective of sustainable industrial and economic development. (Assignments and presentations) ▪ Innovating ideas to capture sustainability dynamics in new age industrialization. (Term Paper) ▪ Developing skill and ability to factor sustainable development into industrial policies making. (Term Paper) 	Link
PPS 135	Energy policy and sustainable development	<p>At the end of the course, the course participant will have:</p> <ul style="list-style-type: none"> ▪ Comprehensive understanding of the Indian energy sector, its evolution, the sustainability issues and the evolution of the policy landscape ▪ A deeper understanding of the nature of the policy issues and the interplay of many cross-sectorial aspects that must be considered in policy making in the energy sector ▪ A broad understanding of tools and techniques needed for policy making in the context of energy sector and sustainable development ▪ Ability to analyse a given policy for risks and intended and unintended outcomes ▪ A deeper understanding of path dependencies, scenarios and vulnerabilities in policy making ▪ An understanding of what may or may not work through an analysis with case-studies. 	Link
PPS 153	Governance and law	<p>On completion of this course, the participants would be able to:</p> <ul style="list-style-type: none"> ▪ Make contributions in the form of articles and policy briefs that analyses the role of independent regulatory bodies in ensuring equity, justice and socio-ecological integrity ▪ Critically analyse the role of judiciary in policy making and implementation especially in the field of environmental law. 	Link
PPS 136	Challenges of a digital economy	<ul style="list-style-type: none"> ▪ Develop an understand on the impact of digitization on economy, society at large: Essay ▪ Understand the upcoming trends and directions in the digital 	Link

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		<p>world: Midterm Quiz</p> <ul style="list-style-type: none"> Focus on how emerging digital technology can transform one sector in detail: Presentation 	
PPS 137	Policy Lab-I	At the end of Semester, the students are required to prepare a draft policy in consultation with stakeholders. This will lead to a diagnostic assessment and recommendations to the relevant government agency on enhancing sustainability outcomes and minimising any unintended negative consequences.	Link
PPS 191	Assessing public policy : methods and Measurements	<ul style="list-style-type: none"> Effectively able to differentiate between association and causation Application of appropriate impact evaluation framework and methodology depending on the problem at hand Understanding of the limitations of different evaluation frameworks and methodologies and how to state the same in the study How to set up logically the theory of change and gleaning out the other factors that can also affect the outcome from the treatment factor How to select the treatment and control units for evaluation purpose 	Link
PPS 192	Major policy issues : Education, health and infrastructure in India	<p>At the end of the course, the participants would be able</p> <ul style="list-style-type: none"> To know the policy issues in the three sectors; and Critically reflect on the development policies in India. <p>The evaluation criteria of article/book review, presentations, individual and group wise and a written examination will measure the progress of each student in the class</p>	Link
PPS 193	Policy perspectives on water	<p>At the end of the course, students would:</p> <ul style="list-style-type: none"> Have the ability to understand the reasons for contestation over water resources, its management and governance Be able to understand, analyse issues regarding water governance and reforms in India taking into account social, economic and environmental parameters Be able to articulate the contemporary challenges that the water sector in India faces. 	Link
PPS 194	Public policy processes and institutions	<p>At the end of the course, the participants would be able to</p> <ul style="list-style-type: none"> know the public policy process and; be introduced to critically reflect on the actors and public policy institutions 	Link
PPS 195	Communities and conservation	<p>TEST I and II : Basic concepts and Fundamentals of Biodiversity and Conservation</p> <p>Presentation: Ability to present a proposal for biodiversity and conservation related to their respective work area.</p> <p>Report: The course participants would be able to integrate the learning in their respective areas of work and influence decision making.</p>	Link
PPS 196	Sustainable Urbanization	<p>On successful completion of this course, the students shall</p> <ul style="list-style-type: none"> Be able to appreciate the significance of sustainable consumption and production and resource efficiency in context of complexities relating to urbanisation and its linkages to sustainable development in cities. Be able to examine city development sectoral policies and strategies and their linkages to SDGs such as the SDG 11 (Sustainable Cities And Communities) and SDG 12 (Responsible Consumption and Production) 	Link
PPS 197	Agriculture and rural development	Students will develop a critical understanding on the growth trajectory and development of agricultural sector in India and on issues like food security and climate change that can impact the livelihood strategy of substantial sections of the rural population. The	Link

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		<p>specific outcomes of the above-mentioned evaluation criteria as follows:</p> <ul style="list-style-type: none"> ▪ Test-1: An understanding of interlinkages between agriculture, food security and global developmental challenges ▪ Test-2: Critical understanding of growth trajectories of Indian agriculture and policy impacts on different sectors of the rural population ▪ Test-3: Critical understanding of agrarian changes in Rural development 	
PPS 198	Public management : Issues and challenges with special reference to India	<ul style="list-style-type: none"> ▪ Developing knowledge to adopt changes emerging in governance and administration; ▪ Acquiring skills to adapt to newer aptitudes required. 	Link
PPS 138	Policy lab II	At the end of Semester, the students are required to prepare a final product either in form of a policy paper or a policy discussion paper after taking in to account implementation challenges. This will lead to a diagnostic assessment and recommendations to the relevant government agency on enhancing sustainability outcomes and minimising any unintended negative consequences.	Link
PPS 100	Major Project	<p>At the end of this course, the student should be able to –</p> <ul style="list-style-type: none"> ▪ Conceptualise research questions, objectives, methodology and conduct appropriate analysis for a chosen research/development project. ▪ Independently demonstrates/display the knowledge and capability to conduct research and contribute to large scale research and development works. ▪ Approach and analyse a problem holistically, and to recognize, formulate and deal with complex issues critically, independently, and innovatively. ▪ Integrate knowledge critically and systematically, and clearly present and discuss the findings in addition to the knowledge and arguments, which constitute the basis for the findings. ▪ Identify, analyse, and critically evaluate the environmental issues that must be addressed within the framework while taking account of all dimensions of sustainable development. ▪ Realize the ethical and moral aspects of research work while learning and applying the techniques. 	Link
PPS 184	Art and Sustainability	<p>After attending this course, a group of future students and sustainability professionals will be created who will –</p> <ul style="list-style-type: none"> ▪ Have the ability to create and sustain an introspective, self – reflective (Test 1 & 3), empathetic (Test 2), experimental perspective (Test 2) about bridging, integrating philosophies between the theoretical, experimental and practical aspects of social, economic and environmental domains of sustainability ▪ Will be able to create application of different art forms in their professional and public life with four main components viz. introspection, reflection, action and liberation (Test 2) ▪ Will be able to create a collective, integrated thinking around issues and principles of equity and justice surrounding sustainability by using different art forms (Test 3) 	Link
PPS 129	NGO Attachment	<p>At the end of this course, the student should be able to –</p> <ul style="list-style-type: none"> ▪ Conceptualise research questions, objectives, methodology and conduct appropriate analysis for a summer project research work. ▪ Independently demonstrate/display the knowledge and capability to conduct research and contribute to large scale research and development works. 	Link

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		<ul style="list-style-type: none"> ▪ Approach and analyse a problem holistically, and to recognize, formulate and deal with complex issues critically, independently, and innovatively. ▪ Integrate knowledge critically and systematically, and clearly present and discuss the findings in addition to the knowledge and arguments, which constitute the basis for the findings. ▪ Identify, analyse, and critically evaluate the environmental issues that must be addressed within the framework while taking in account all dimensions of sustainable development. ▪ Realize the ethical and moral aspects of research work while learning and applying the techniques. 	
PPS 107	International exposure	<p>At the end of this course, the student should be able to –</p> <ul style="list-style-type: none"> ▪ Conceptualise research questions, objectives, methodology and conduct appropriate analysis for the assigned project work. ▪ Independently demonstrate/display the knowledge and capability to conduct research and contribute to large scale research and development works. ▪ Approach and analyse a problem holistically, and to recognize, formulate and deal with complex issues critically, independently, and innovatively. ▪ Integrate knowledge critically and systematically, and clearly present and discuss the findings in addition to the knowledge and arguments, which constitute the basis for the findings. ▪ Identify, analyse, and critically evaluate the environmental issues that must be addressed within the framework while taking account of all dimensions of sustainable development. ▪ Realize the ethical and moral aspects of research work while learning and applying the techniques. 	Link
PPS 107 A	Summer Project	<p>At the end of this course, the student should be able to –</p> <ul style="list-style-type: none"> ▪ Conceptualise research questions, objectives, methodology and conduct appropriate analysis for a summer project research work. ▪ Independently demonstrate/display the knowledge and capability to conduct research and contribute to large scale research and development works. ▪ Approach and analyse a problem holistically, and to recognize, formulate and deal with complex issues critically, independently, and innovatively. ▪ Integrate knowledge critically and systematically, and clearly present and discuss the findings in addition to the knowledge and arguments, which constitute the basis for the findings. ▪ Identify, analyse, and critically evaluate the environmental issues that must be addressed within the framework while taking in account all dimensions of sustainable development. ▪ Realize the ethical and moral aspects of research work while learning and applying the techniques. 	Link

Contact Hours_2021

Rebecca Anthony <rebecca.anthony@terisas.ac.in>

Thu 09-09-2021 16:57

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Cc: Kavita Sardana <kavita.sardana@terisas.ac.in>; Sukanya Das <sukanya.das@terisas.ac.in>; Seema Sangita <seema.sangita@terisas.ac.in>; Nandan Nawn <nandan.nawn@terisas.ac.in>; Shantanu De Roy <shantanu.roy@terisas.ac.in>; Montu Bose <montu.bose@terisas.ac.in>

Dear Students,

Please find the below contact hours.

M.Sc Economics	
Faculty Name	Day/Time
Dr.Seema Sangita	Tuesday 10:30 am -11:30 am or on prior appointment
Dr.Kavita Sardana	On Prior appointment
Dr.Sukanya Das	Saturday 11:00 am -12:00 pm
Dr. Nandan Nawn	On Prior appointment
Dr.Shantanu De Roy	Friday 2:30 pm - 4:00 pm
Dr. Montu Bose	On Prior appointment

With Best Regards,
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