

Department of Society-Technology Interface

School of Social Sciences

INDUCTION BOOKLET

Master of Science (M.Sc.) in Digital Society

Two-Year Post Graduate Programme

(Academic Year 2022-23)



Central University of Rajasthan

NH-8, Bandar Sindri, Kishangarh

District Ajmer-305817, Rajasthan

Learning Outcomes-based Curriculum Framework (LOCF) and Syllabus

For

Master of Science (M.Sc.) in Digital Society Two-Year Post Graduate Programme

About the Programme

The Central University of Rajasthan in collaboration with International Institute of Information Technology – Bangalore (IIIT-B) started the Two-year Masters Programme (M.Sc) in Digital Society with effect from Academic Year 2018-19, similar to the one being offered at IIITB. The programme introduces to the students from diverse educational backgrounds the academic inter-linkages between the two advanced streams of knowledge- Science and Technology and Social Sciences for better career opportunities and staying competitive.

Students' intake in the Programme: 30

Programme Objectives

The Two Years Masters in Digital Society would fulfil the following objectives:

- To help the students to appreciate and understand the digitization ideas, tools and technologies from the perspectives of society at large.
- To enable students to think innovative and generate ICT based solutions intended to address developmental deficits and challenges in the society.
- To help the society to find out ways of strengthening system mainly to counter the laggards performances in the social and economic sectors of the economy.
- To engage in evidenced-based policy-making process and advocates for deployment of digital technologies for the effective policy-implementation process.
- To promote and enrich interdisciplinary research on the digital society by interlinking ICT and Social Sciences.

Learning Outcomes:

The students, after completing the two years of the coursework in the programmes, are expected to draw the following learning outcomes:

1. Interdisciplinary skills in understanding the interlinkages of the fundamental concepts,

principles and processes drawn from various disciplines of social sciences (Public Policy, Sociology, Political Science, Social Works, Development Studies, Governance Studies, Economics and Management) and Science and Technology (Computer Science, Big Data Analytics, etc.).

2. Apply quantitative and qualitative methodologies in order to assess the strong relationship between application of digital technologies, including information and communications technology (ICT), and developmental problems that the country faces today; and apply those relevant knowledge and skills to seek technological solutions to diverse socio-economic problems.
3. Use discipline-specific competencies relevant to academia and industry, generic skills and global aptitude, including knowledge and skills that enable students to undertake further studies in the field of Digital Society or a related field, and work in the industry, academia or civil society organizations.
4. Undertake hands on lab work and field surveys and other relevant approaches which develop problem solving abilities required for successful career in IT and non-IT industry, teaching, research organizations, consultancies, civil society organizations, etc.
5. Recognize and appreciate the importance of digital technologies and their application in academic, industrial, social, economic and environmental contexts.
6. Application knowledge that creates different types of professionals in the field of Digital Society and related areas of specialisation with policy-driven, data-driven and design-driven applications.

Academic Entry Requirements

- The Two Years Masters in Digital Society is open to candidates with a Graduate degree (Three Years) in any disciplines from recognized University possessing minimum of 55% marks. Those expecting to graduate by June- July may also apply. The Graduate Degree may be in any of the following areas: Sciences, Social Sciences, Arts and Humanities, Computer Sciences, and Engineering.

Admission Process

- Applicants must pay a non-refundable application fee as decided by the University in time to time for applying to Masters Programme in CURAJ through CUET. This will be conducted through CUET examination.
- The CUET examination will test numerical / quantitative, analytical, and verbal abilities, as well as design, social, and information technology awareness.
- The selection process includes the entrance examination of CUET score and the personal interview (if required by the University) for the induction of students to the Master's Programme.
- Other scores (if applicable) as suggested by IIIT-B for the admission will be considered for the admitting students to the programme. However this is subject to approval of University.
- The admission criteria, tuition fees and other fees for the programme will be administered by rules and regulations as approved by the academic / administrative bodies of the

University.

- The fees structures for the Programme will be at par with the fees structures applicable in M.Sc in Big Data Analytics.
- A student admitted to one institute will be governed by all the rules and regulations existing at that institute.
- In case of the vacant seats in the Programme, both IIIT-B and CURAJ will explore the filling of the vacant seats through CUET.

Instructions

- The medium of instruction is English and determined by the Ordinances of the University.

Students Exchange Programme

Under the programme, there is an opportunity for exchange of students enrolled at CURAJ as well as in the M.Sc (Digital Society) Programme in IIIT-B. Such an exchange may happen during First /Second year of the respective Programmes and should confirm to the academic requirements of their respective institutions. In such case, the Institution where a student goes on exchange shall transfer the credit/grade earned by the student to that Institute (Host Institute) where the student was admitted to for appropriate consideration for the award of the Degree. In such case of student exchange programme, the expenses in all respects have to be borne by the concerned student opting for student exchange opportunities.

Assessment

The Assessment mode of the Two –Year Masters Programme is determined by the Evaluation process of the University (as per the Ordinance of the University). However in the case of student exchange from CURAJ to IIIT-B and vice-versa, the Assessment rules and regulations of the respective institution will apply.

Career Opportunities:

Digitalization is shaping almost all aspects of our professional and working lives. Career opportunities include work as internet researcher, digital media researcher, software development professional, digital consultants, ICT consultants, policy experts, etc. Students passing out from the programme will be working in ICT industries, research organization, private companies, public sector, consultancy services industry, and international organization and also in non-governmental organization. Both the Institutes will conduct combined Placement activities as per the Placement Rules existing at the respective Institutions.

Pedagogy

The Two Years Masters programme in Digital Society will consist of Four Semesters and students seeking Master's Degree have to earn required credits from total 92 credits in the course of two years. The followings will be the pedagogy for the Two Years Master's Programme in Digital Society:

- A two weeks preparatory programme (Remedial Training) on Introduction to Digital Society.
- Core Courses and Electives.
- ICT-Lab based learning in first three Semester of the Programme
- Project-based learning.
- Dissertation and Internship.

Course Design of M.Sc in Digital Society for Academic Year 2022-23			
Course Code	Name of the Courses	Nature of the Course	Credits
First Semester (I)			
STI 401*	Quantitative Techniques	C	4
STI 402*	Public Policy Paradigms and Practices	C	4
STI 403*	Digital Media, Culture and Society	C	4
STI 404*	Managerial Economics	C	4
STI 405	Information Technology (IT) and Society	C	4
STI 481	ICT-Lab/ Workshop – Programming Concepts	SEC	2
STI 482	Digital Society: Case Studies	AEC	2
Total Credits			24
Second Semester (II)			
STI 411	Information Communication Technology Policy and Regulation	C	4
STI 412**	Emerging Digital Technologies	C	4
STI 413	Research Methodology	C	4
STI 414**	Law and Digital Society	C	4
STI 431	Elective I	E	4
STI 483	ICT Lab and Workshop- Programming Concepts	SEC	2
STI 484	Seminar / Term Paper / Case Study	AEC	2
Total Credits			24
Third Semester (III)			
STI501	Society, Network and Social Networks	C	4
STI532	Elective II	E	4

STI533	Elective III	E	4
STI534	Elective IV	E	4
STI535	Elective V	OE	4
STI585	Data Analysis Lab: R	SEC	2
STI586	Spatial Data Infrastructure Lab	SEC	2
STI551[#]	Summer Internship Project	PC	6
Total Credits			24+6
Fourth Semester (IV)***			
-	Departmental Specific Electives	DSE	12
-	UHV- II**	Audit Course	4
STI512[#]	Dissertation	PC	8
-	Fitness		2*
-	Community Service		2*
Total Credits			24
Total Credits for M.Sc in Digital Society			102

Note –

*2 Credit Course for Fitness will be spread over all the 4 Semester of the Course. 2 Credit Course for Community Service will also be spread over all the 4 Semester of the Course. In Fitness, the students are expected to participate in any physical activity (e.g. Yoga, sports etc.) and in Community Service they need to engage in some social activity (e.g. NSS etc.) in the university, right from I Semester to the IV Semester. By participating in both these activities the student will be earning 2 credits for the Fitness and 2 Credits for Community Service. Fitness and Community Service will be proportionately spread over the four semesters. A faculty coordinator for each of these courses will be appointed at department/university level for better supervision and evaluation purpose.

**The course on University Human Values (UHV) is a compulsory course as an audit course which should be cleared by all the students; however, this will not affect the credits of the programme.

*The following courses of the First Semester would be courses from other allied academic departments: STI401: Quantitative Techniques (MBA); STI 402: Public Policy Paradigms and Practices (PPLG); STI 403: Media, Culture and Society (CMS); STI 404: Macro Economics (Dept of Economics).

[#]STI551 Summer Internship Project is introduced in ademic year 2022-23.

[#]STI552 Dissertation course code is changed from STI551 to STI552.

** STI 412 STI 414 have been renamed as “Emerging Digital Technologies” & “Law and Digital Society” as against the previously approved paper STI 402: Recent Trends in Information Technology: Internet, Web, Mobile, & Cloud Technology and STI 409: Cyber Law

*** Students who will be opting for Internship in any outside organization, they need to complete whole 20 Credits for Dissertation in the Fourth Semester. In this case the

Dissertation will be 8 Credits. In case, the students not undertaking Internship in any external agencies in the last Semester, he has to opt Elective VI (4 Credits) in other

Departments and write Dissertation of 8 Credits under the supervision of the Department Faculty Members.

Courses	Credits
Core	60
Electives	20
SEC	8
AEC	4

C: Core Courses ; E: Elective (Dept.); OE: Other Dept. Elective; SEC: Skill Enhancement Course; AEC: Ability Enhancement Course, PC:Project course

List of Tentative Electives

Department Electives

1. Politics and Information Society
2. Economy and Information Society
3. Business & Information Society
4. **Digital Marketing**
5. E-Commerce
6. Innovation and Entrepreneurship in Digital Society
7. **Internet, Society and Economy**
8. Privacy in the Digital Age
9. **ICT and Development**
10. Management Information System (MIS)
11. Cultural Informatics
12. Spatial Data Infrastructures
13. Project Management Appraisal
14. Big Data and Public Policy
15. **Strategic Management**
16. Gender and Digital Technology
17. Digital Commons
18. Statistics for Social Sciences

Indicative Electives from Other Department:

1. Big Data Analysis (BDA)
2. Python and Java (BDA)
3. Digital Humanities (Linguistics)
4. Management Principles and Organization Behaviours (Management)
5. Project Planning and Control (Management)

6. Science of Climate and Climate Change (Atmospheric Sciences)
7. Fundamental of Atmosphere, Law and Ocean (Atmospheric Sciences)
8. E-Governance (PPLG)
9. Impact Evaluation (PPLG)

Course : Quantitative Techniques (STI 401)		
TEACHING SCHEME	EXAMINATION SCHEME	CREDITS ALLOTTED
Theory: 4 hrs. per week	End Semester Examination: 60 marks Internal Assessment: 40 marks	Theory: 4
		Total: 4
Course Pre-requisites:		
1	Must possess critical thinking of statistical techniques	
2	Basics understanding of research methods and methodology, especially concepts of quantitative tools	
Course Objective:		
1	The objective of the course is to equip the student with basic quantitative tools required to perform the role as a manager.	
2	This will enable him to do analytical evaluation and arrive at logical conclusions & inferences to the decisions.	
Course Outcomes: The students will be able to		
1	Explaining quantitative methodology to the students with practical understanding of applying same so that they can use the tools to address problem solving in real world.	
2	Apply critical thinking of statistical techniques in understanding various issues associated with public policy and management.	
Course Content:		
UNIT I	Introduction: Decision Theory, Decision making under uncertainty, Criterion of Maximin and minimax, Decision making under risk Bayesian approach, Criterion of Maximum likelihood, Decision Tree-Applications, Decision making in a Competitive Situation- Game Theory, Types of Games, Two-person zero sum games, Mixed strategy and Method of solution.	7 hrs.
UNIT II	Linear Programming Linear Programming, Problem formulation and graphical methods of solution, Simplex method, Elementary ideas about duality, Sensitivity Analysis, Integer Programming and Goal Programming	7 hrs.
UNIT III	Transportation Model Transportation Model, Northwest Corner Rule, Steppingstone Method, VAM, MODI, Application of Transportation Model, Assignment Models, Transshipment and Routing Problems	7 hrs.
UNIT IV	Waiting Line	7 hrs.

	Waiting line, Characteristics, Single and multiple channel models, business application of waiting lines, Simulation for business, Monte Carlo method and application of simulation in business situations.					
UNIT V	PERT & CPM PERT & CPM, Network construction and analysis, Critical path, Time-cost, trade off, Crash activity analysis, Planning and scheduling, Project costs, Controlling project costs.					7 hrs.
UNIT VI	Case Studies Case studies based on above-mentioned curriculum					6 hrs.
Internal Assessment:						
CIA 1	Unit I, Unit II					
CIA 2	Assignment submission and/or presentation					
Textbooks:						
1. Tulsian and Pandey, Quantitative Techniques, Pearson Education						
2. Sharma J. K., Operations Research						
Reference Books:						
1. Anderson, Sweeney and Williams, An Introduction to Management Science						
2. Vohra, N.D. Quantitative Techniques in Management, 3rd Edition, Tata McGraw Hill						
3. Taha, H.A., An introduction to Operation Management						
	PO1	PO2	PO3	PO4	PO5	PO6
CO1		1			2	
CO2	2		2			3
*1: Low, 2: Medium, 3: High						

Course: Public Policy Paradigms and Practices (STI 402)

Course: Public Policy Paradigms and Practices (STI 402)		
TEACHING SCHEME	EXAMINATION SCHEME	CREDITS ALLOTTED
Theory: 4 hrs. per week	End Semester Examination: 60 marks Internal Assessment: 40 marks	Theory: 4
		Total: 4
Course Pre-requisites:		
1.	Must possess comprehensive thinking	
2.	Basics understanding on concepts and theories of public policy.	
Course Objectives:		
1.	This course aims at familiarizing the students with the key concepts and theories of public policy.	
Course Outcomes:		
1.	To understand why policy issues, arise to the government to act upon.	
2.	To discuss how different actors play their role in shaping and influencing the policy process.	
3.	To examine how policy problems and issues are defined, formulated, and implemented.	
4.	To understand why policy issues, arise to the government to act upon.	
Course Content:		
UNIT I	Introduction: Policy Analysis: Meaning and Scope, Rise of Public Policy as a Discipline. Meta and Meso Analysis of Public Policy, Putting Policy as Public Agenda, Policymakers and their environment, Policy formation: problems, agendas and formation, Policy impact, evaluation, and change.	7 hrs.
UNIT II	Analytical Framework: Classical, Neo-Classical, Marxist, Neo-Marxists, Keynesian Perspective, Welfare Economics, Institutional Economics, Behavioral Economics, Stages Approach to Policy process: Theoretical Narratives of Policy Cycle, General Systems Analysis, Social Fabric Matrix	7 hrs.
UNIT III	Rationality in policymaking:	8 hrs.

	Contributions of Weber, Simon and Public Choice theorists: Rationale Choice Theory, Public Choice Theory, Maslow's Theory, Cost- Benefit Analysis						
UNIT IV	Pluralist approach and role of institutions: Pluralism, Institutionalism, New Institutionalism, Complexity						7 hrs.
UNIT V	Policy paradox- determining policy objectives equity and justice: Ideologies and institutional constraint, Translating Theory into practice, Exclusion and inclusion in public policy						7 hrs.
UNIT VI	Case studies Based on above-mentioned curriculum						7 hrs.
Internal Assessment:							
CIA 1	Unit I, Unit II						
CIA 2	Assignment submission and/or presentation						
Textbooks:							
1. Anderson, James E (2004) Public Policy making, Houghton, New York							
2. Bochel, HughandDuncan,Sue 2007 Making Policy in Theory and Practice, The policyPress, Great Britain							
Reference Books:							
1. Brewer, G., and deLeon, P. (1983). The Foundations of Policy Analysis. Monterey,Cal.: Brooks.							
2. Guy Peters, 2015, Advanced Introduction to Public Policy, Edward Elgar PublishingHouse. Cheltenham, U.K.							
3. Parsons, Wayne, 2005, Public Policy: An Introduction to the Theory and Practice ofPolicy Analysis, Edward Elgar Publishing Ltd. Cheltenham, U.K.							
PO-CO Compliance Matrix							
	PO1	PO2	PO3	PO4	PO5	PO6	
CO1	3	3	3	3	3	3	
CO2	3	2	3	3	3	3	
CO3	3	3	3	2	3	3	
CO4	2	2	3	2	3	2	
*1: Low, 2: Medium, 3: High							

Course: Introduction of media, culture, and society (STI-403)

Course: Introduction of media, culture, and society (STI-403)		
TEACHING SCHEME	EXAMINATION SCHEME	CREDITS ALLOTTED
Theory: 4 hrs. per week	End Semester Examination: 60 marks Internal Assessment: 40 marks	Theory: 4
		Total: 4
Course Pre-requisites:		
	Must possess comprehensive thinking	
	Basic understanding on Media and Society	
Course Objectives:		
	This course will introduce the students to the proper understanding and inter-relationship between Media, Society and Culture. It will describe the foundations and dimensions of civilization. It will develop an understanding of various contemporary issues and the media.	
Course Outcomes:		
1	Students will be able to identify the relation between media and society;	
2	Analyze and explain various dimension of media and its role;	
3	Understand the effects of mass communication on society, audiences and people.	
Course Content:		
UNIT I	Introduction: Introduction to Media and Society: Mass Media and Society; Meaning, forms and functions of Media; Understanding Society, Social structure, Socialization and Social Relations.	8 hrs.
UNIT II	Media, Culture and Society Media, Culture and Society: Brief history of civilizations; Ideas of India, Discovery of India; Mass Communication and Culture; Information Technology and Society.	8 hrs.
UNIT III	Media Audiences	8 hrs.

	Media Audiences: Media Audience – Meaning and types; Public Opinion, News Framing and Agenda Setting; Media and Concepts of Public Sphere.					
UNIT IV	Media Content Media Content: Contemporary caste dynamism: caste movements, caste violence and media; Gender and Media, women’s movement in India, gender and question of honour; Media, Religious identity and contemporary politics.	8 hrs.				
UNIT V	Practical assignment Paper presentation, analysis and discussions, communication skill development	8 hrs.				
Internal Assessment:						
CIA 1	Unit I, Unit II					
CIA 2	Assignment submission and/or presentation					
Textbooks:						
3. Media Society by David Croteau and William Hoynes						
4. Media and society in the twentieth century: a historical introduction – 2003; Lyn Gorman and David Mclean Oxford Blackwell Publishing.						
5. Media and Society into the 21st century – Lyn, Gorman and Mclean David Willey- -blackwell, 2009.						
6. Oommen, T.K. (2007) “Knowledge and Society: Situating Sociology and Social Anthropology”. New Delhi: OUP						
Reference Books:						
4. Rege, Sharmila (2003) “Sociology of Gender: The Challenge of Feminist Sociological Knowledge”. New Delhi: Sage						
5. Singh, Yogendra (2004) “Ideology and Theory in Indian Sociology”. Jaipur: Rawat.						
6. Graeme Burton, Media and society critical perspective, Rawat Publication, Jaipur, 2005						
7. J. Nehru, chapter on ‘Discovery of India’ from Discovery of India, Penguin books						
8. Agnes, Flavia, ‘Transgressing Boundaries of Gender and Identity’, Economic and Political Weekly September 7, 2002						
PO-CO Compliance Matrix						
	PO1	PO2	PO3	PO4	PO5	PO6
CO1	3	3	3	3	3	2
CO2	3	2	3	3	3	2
CO3	3	3	3	2	3	1
*1: Low, 2: Medium, 3: High						

Course: Macroeconomics (STI 404)		
TEACHING SCHEME	EXAMINATION SCHEME	CREDITS ALLOTTED
Theory: 4 hrs. per week	End Semester Examination: 60 marks Internal Assessment: 40 marks	Theory: 4
		Total: 4
Course Pre-requisites:		
1.	Must possess comprehensive thinking	
2.	Must possess basic concepts of macro-economic.	
Course Objectives:		
	The course seeks to develop an understanding of the rationale for public policies and means of assessing them using the logic and tools of microeconomics. The topics emphasized include basic concepts of macro-economic concepts.	
Course Outcomes:		
1.	To enhance the understanding of macro-economic concepts for the larger understanding of the policy problems.	
2.	To develop the case-study methods through the application of economic data and analysis to gauge the gravity of policy problems.	
3.	To enhance discipline specific competencies relevant to academia, industry, and generic skills.	
Course Content:		
UNIT I	Introduction: Basic Concepts, Macroeconomic Variable- Stocks and Flows, Macroeconomic relationships, Micro assumptions of macroeconomics,	6 hrs.
UNIT II	Problem of Aggregation: Macroeconomic Equilibrium, Flow equilibrium and Stock equilibrium, Full equilibrium. National Income Accounts, Flow of Funds Accounts and Input- Output Accounts, Concept of Wealth and Price Indices	7hrs

UNIT III	Determination of Income and Employment: Models of Income and Employment Determination: An Overview, Walrasian interpretation of Keynesian unemployment- Patinkin, Clower, Leijonhufuud, New Keynesian Interpretation, PostKeynesian Interpretation- Sidney Weintraub, Paul Davidson, Kalecki and Minsky, New Classical Economics.	7 hrs.
UNIT IV	Money Demand for Money- Friedman, Baumol, Tobin, Patinkin's Real Balance Effect, Issues regarding endogenous and exogenous supply of money, R.B.I.'s Approach to Supply of Money	7 hrs.
UNIT V	Inflation: Demand-Pull and Cost-Push Inflation, Phillips Curve Controversy, Natural Rate of Unemployment, Adaptive expectation and Rational expectation models, Lessons from the Indian Economy.	7 hrs
UNIT VI	Consumption Function and Investment Function: 6 Life Cycle Hypothesis, Permanent Income Hypothesis, Random Walk Hypothesis, Classical Theory of Investment, Keynesian Theory of Investment, Accelerator, Neo-Classical and New Classical Theories of Investment.	7 hrs.
Internal Assessment:		
CIA 1	Unit I, Unit II	
CIA 2	Assignment submission and/or presentation	
Textbooks:		
1. Jonathan Gruber, Public Finance and Public Policy (Worth Publishers, 2009).		
2. Charles Wheelan and Burton G. Malkiel, Naked Economics: Undressing the Dismal Science (Norton, 2003).		
3. Kenneth A. Shepsle, Analyzing Politics: Rationality, Behavior, and Institutions (W.W. Norton, 2010),		
4. Dornbusch, Fischer and Startz, Macroeconomics, McGraw Hill, 11th edition, 2010.		
Reference Books:		
1. N. Gregory Mankiw. Macroeconomics, Worth Publishers, 7th edition, 2010.		
2. Olivier Blanchard, Macroeconomics, Pearson Education, Inc., 5th edition, 2009.		
3. Charles I. Jones, Introduction to Economic Growth, W.W. Norton & Company, 2nd edition, 2002.		
4. Errol. D'Souza, Macroeconomics, Pearson Education, 2009.		
5. Robert J. Gordon, Macroeconomics, Prentice-Hall India Limited, 2011.		

PO-CO Compliance Matrix						
	PO1	PO2	PO3	PO4	PO5	PO6
CO1	3	3	3	3	2	1
CO2	3	2	3	3	1	1
CO3	3	3	3	2	1	2
*1: Low, 2: Medium, 3: High						

Course: Information Technology and Society (STI 405)		
TEACHING SCHEME	EXAMINATION SCHEME	CREDITS ALLOTTED
Theory: 4 hrs. per week	End Semester Examination: 60 marks Internal Assessment: 40 marks	Theory: 4
		Total: 4
Course Pre-requisites:		
1.	Must possess comprehensive thinking	
2.	Basics understanding on the social implications of Internet and related information and communication technologies.	
Course Objectives:		
1.	This course will provide an overview of the major findings to date within several social science disciplines, including communication studies, sociology, anthropology and political science. The course will also introduce the different social science disciplines and theories that address the social implications of Internet and related information and communication technologies. Through this course, students will have a thorough understanding of the main perspectives and key findings about the social implications of the Internet and other ICT technologies.	
Course Outcomes:		
1.	Explain theoretical insights, currents discourses and key concepts relating to the study of technology within several social science disciplines, including communications study, sociology, anthropology and political science.	
2.	Provide understanding of the linkages between problems associated with technology and their interpretation and manifestation in the wider social context.	

3.	Apply critical thinking using theories relating to technological determinism, social construction, materiality and neutrality that address society-technology relationship.	
4.	Develop scientific perspectives around the historical evolution of technologies and their social relevance.	
Course Content:		
UNIT I	Introduction: Information Technology and Society: An Introduction, Social Shaping of Technology	7 hrs.
UNIT II	Theories: Theories of Society and the Internet, Globalization and Domestication	7 hrs.
UNIT III	Mobile Phones, the Internet, and Perpetual Contact The Presentation of Self Online, Social Implications of Online Data	7 hrs.
UNIT IV	Work & Economic Life Online Microblogging among New and Old Media	7 hrs.
UNIT V	The Internet and Democracy The Knowledge Society	7 hrs.
UNIT VI	Case studies and Technology	6hrs
Internal Assessment:		
CIA 1	Unit I, Unit II	
CIA 2	Assignment submission and/or presentation	
Textbooks:		
1. Bimber, Bruce (2003) Information and American Democracy: Technology in the Evolution of Political Power. Cambridge: Cambridge University Press.		
2. Boyd, Danah (2014) It's Complicated: the social lives of networked teens. New Haven: Yale University Press.		
3. Castells, Manuel (2009), Communication Power, Oxford: Oxford University Press.		
Reference Books:		
1. Donner, Jonathan (2015) After Access: Inclusion, Development, and a More Mobile Internet, Cambridge: MIT Press.		
2. Dutton, William (2013), Handbook of Internet Studies, Oxford University Press		
3. Graham, Mark & Dutton, William (2014) Society and the Internet. Oxford: Oxford University Press.		

PO-CO Compliance Matrix						
	PO1	PO2	PO3	PO4	PO5	PO6
CO1	3	3	3	3	3	2
CO2	3	2	3	3	3	1
CO3	3	3	3	2	3	2
CO4	2	2	3	2	3	2
*1: Low, 2: Medium, 3: High						

Course: ICT-Lab / Workshop: Programming (STI 481)		
TEACHING SCHEME	EXAMINATION SCHEME	CREDITS ALLOTTED
Theory: 2 hrs per week	End Semester Examination: 60 marks Internal Assessment: 40 marks	Theory: 2
		Total: 2
Course Pre-requisites:		
1	Must possess analytical thinking	
2	Basic understanding of data analysis in social science related fields	
Course Objective:		
1.	To familiarize the student with the variety of approaches for processing pre-collected data, a technique colloquially referred to as data analyzing.	
Course Outcomes: The students will be able to		
1.	Explain basic theoretical concepts of programming applicable for data analysis in social science related fields.	
2.	Provide analytical techniques and tools for data filtering, storing, and preparing data for analysis.	
3.	Apply some of the statistical software packages to analyse data related to social science disciplines.	
4.	Explore text processing and other social media sentimental analysis for policy purposes.	
Course Content:		
UNIT I	Introduction:	4 hrs.

	Input / Output / Storage of data as a file.						
UNIT II	Text processing Text processing and regular expressions						4 hrs.
UNIT III	iPython Shaping data using iPython						4 hrs.
UNIT IV	Other special formats Unicode, Datetime, Geojson and other special formats						4 hrs.
UNIT V	Training of software Training of STATA/SPSS software						4 hrs.
Internal Assessment:							
CIA 1	Unit I, Unit II						
CIA 2	Assignment submission and/or presentation						
Textbooks:							
1. McKinney, W. (2013). Python for Data Analysis. Sebastopol, CA. O'Reilly Media.							
2. Bird, S., E. Klein & E. Loper. Natural Language Processing with Python. Sebastopol, CA. O'Reilly Media.							
Reference Books:							
1. White, Tom. (2015). Hadoop: The Definitive Guide. Shroff Publishers & Distributers Private Limited.							
2. Grover, Mark, Malaska, Ted, Seidman, Jonathan, & Shapira, Gwen (2015). Hadoop Application Architectures. O'Reilly Media Inc.							
	PO1	PO2	PO3	PO4	PO5	P06	
CO1		4		1	2	1	
CO2	2	3	3	2	3	2	
CO3	3	2	3	2			
CO4	3	2	3	2	3	3	
*1: Low, 2: Medium, 3: High							

Course: Digital Society: Case Studies (STI 482)		
TEACHING SCHEME	EXAMINATION SCHEME	CREDITS ALLOTTED
Theory: 2 hrs per week	End Semester Examination: 60 marks Internal Assessment: 40 marks	Theory: 2
		Total: 2
Course Pre-requisites:		
1	Must possess comprehensive thinking	
2	Skill in dealing with practical/theoretical problems and challenges related to situations	
3	Knowledge analytical skills	
Course Objective:		
	To provide insights to the students regarding case-based learning and addressing the digital inclusion in society.	
Course Outcomes: The students will be able to		
1	To develop various case studies addressing one or many problems of digitalisation process, data-driven society, digital inclusion, digital divide, and ICT Policy and Regulation	
2	To develop case-based problem-solving skills.	
3	To develop various case study pertaining to digital society in India and defends its relevance in modern-day society.	
Course Content:		
UNIT I	Introduction: Know Case studies as a Research Method	4 hrs.
UNIT II	Designing Case Studies Student presentation and participation	4 hrs.
UNIT III	Reporting to collect case study evidence Student presentation and participation	4 hrs.
UNIT IV	Analysing case study evidence Student presentation and Participation	4 hrs.
UNIT V	Reporting case studies Student presentation and Participation	4 hrs.

UNIT VI	Case Presentation How to display case study outcomes, case study solution interpretation, and case study communication to audience					2hrs
Internal Assessment:						
CIA 1	Unit I, Unit II					
CIA 2	Assignment submission and/or presentation					
Textbooks:						
Robert Jolles (1993) How to Run Seminars & Workshops: Presentation Skills for Consultants, Trainers and Teachers						
Reference Books:						
1. Alexander L. George (2005), Case Studies and Theory Development in the Social Sciences.						
2. Robert Yin (2014), Case Study Research: Design and Methods						
	PO1	PO2	PO3	PO4	PO5	PO6
CO1	1	3	1	1		2
CO2	2	2		1	1	
CO3	1		3	2	1	1

**Course: STI 411: Information Communication
Technology Policy and Regulation**

TEACHING SCHEME			EXAMINATION SCHEME			CREDITS ALLOTTED			
Theory: 4 hrs. per week			End Semester Examination: 60 marks Internal Assessment: 40 marks			Theory: 4			
						Total: 4			
Course Pre-requisites:									
			Must possess comprehensive thinking						
			Basics understanding on understanding of the underlying technology and policy contexts, and theories of ICT policy.						
Course Objectives:									
			<p>The pace of technological change and innovation in the use of information and communication technologies (ICTs) poses significant challenges for policymakers across a variety of issues, whilst regulation and policy will, in turn, shape the range of choices that can be made about the use, design and development of ICTs. Informed academic study of the network of networks that comprise the Internet must, therefore, be firmly grounded in a sophisticated understanding of the underlying technology and policy contexts in which these networks are embedded. Valuable insights are to be gained by studying policy debates relating to the Internet in the broader context of ICT policy more generally, such that continuity and change can be observed.</p>						
Course Outcomes:									
1.			Examine fundamental concepts and key regulatory aspects relating to telecommunications industry and market.						
2.			Explain the regulatory and policy implications of telecommunications, Internet and IT industry on the technological landscape and industrial development.						
3.			Provide historical development of regulatory and policy frameworks in a comparative perspective						
4.			Demonstrate the knowledge of various policy and regulatory issues and concepts surrounding digital technologies, including privacy, security, digital copyright, intellectual property rights, etc.						
Course Content:									
UNIT I			Introduction:						7 hrs.

	History and development of the ICT Policy and Regulation, Planning in India and ICT	
UNIT II	Policy, Governance and Regulatory Frameworks Stakeholders and Policy-making Process; Ministry of Electronics and Information Technology; R& D Institutions in ICT; National Knowledge Networks, Internet Proliferation and Governance; E-Infrastructures	7 hrs.
UNIT III	Privacy and security Content regulation and filtering, Consumer Protection under Digital age, Regulatory Responses to Public Debates on Emerging ICTs, Biometrics, Digital copyright, patents, Universal access, universal service and the digital divide Net Neutrality	7 hrs.
UNIT IV	Government Programmes in India: Aadhar, Digital India, Make-in-India, Skills India, Digital Locker, Digitalisation of Socio-economic services	7 hrs.
UNIT V	Act and Policy: Information Technology Act 2000 (Amendment 2008); National Policy on Electronics 2012; National E-Governance Plan; National Security Policy 2013; National Policy on Universal Electronic Accessibility.	7 hrs.
UNIT VI	ICT and Economic Development: Private Sector regulation; Public Private Partnership	7 hrs.
Internal Assessment:		
CIA 1	Unit I, Unit II	
CIA 2	Assignment submission and/or presentation	
Textbooks:		
1. Banzal, S. (2010). Equitable Communication for All: Policies and Regulatory Issues. ITU-APT Foundation, New Delhi.		
2. Bedi, K., P. Singh, and S. Sandeep (2001) Government@net: New Governance Opportunities for India. New Delhi, Sage Publications.		
3. Bhatnagar, S. (2000). Enhancing Telecom Access In Rural India: Some Options. Paper presented at India Telecom Conference, Asia-Pacific Research Center, Stanford University.		
4. Bhatnagar, S. and R. Schwart (2000) Information and Communication Technology in Development: Cases from India. New Delhi, Sage Publications.		

5. Chopra, A. (2005). Bridging India's Digital Divide: Some Policy and Technological Options. PhD Thesis University of Hohenheim, Stuttgart, Germany.						
6. Chowdhury, S. and Datta, D. (2009). Indian Telecom: Regulation, Spectrum Allocation and Dispute Management. IIMB Management Review.						
Reference Books:						
1. Dasgupta, S., Paul, R., & Fuloria, S. (2011). Factors Affecting Behavioral Intentions towards Mobile Banking Usage: Empirical Evidence from India. Paper presented in conference.						
2. Naughton, John A Brief History of the Future: From Radio Days to Internet Years in a Lifetime. 2000. New York: The Overlook Press.						
3. Singhal A. and M.E. Rogers (2001) India's Communication Revolution from Bullock Carts to Cyber Nets. New Delhi, Sage Publications.						
4. Venkat subramanian, K. Approach paper on "India development as knowledge society", Planning Commission, New Delhi.						
5. Zittrain, Jonathan The Future of the Internet - And How to Stop It. 2008. NewHaven: Yale University Press.						
6. Blackman, Colin. and Srivastava, Lara. (2011). Telecommunications Regulation Handbook, 10th Anniversary Ed., The International Bank for Reconstruction and Development / The World Bank, InfoDev, and The International Telecommunication Union						
7. Rajaraman, V. (2012). History of Computing in India: 1955-2010. IEEE Computer Society.						
PO-CO Compliance Matrix						
	PO1	PO2	PO3	PO4	PO5	PO6
CO1	3	3	3	3	3	3
CO2	3	2	3	3	3	3
CO3	3	3	3	2	3	3
CO4	2	2	3	2	3	2
*1: Low, 2: Medium, 3: High						

Course: Emerging Digital Technologies (STI 412)

TEACHING SCHEME			EXAMINATION SCHEME			CREDITS ALLOTTED		
Theory: 4 hrs. per week			End Semester Examination: 60 marks Internal Assessment: 40 marks			Theory: 4		
						Total: 4		
Course Pre-requisites:								
1.	Must possess comprehensive thinking							
2.	Basics understanding on emerging digital technologies in modern day life							
Course Objectives:								
1.	Building on the fundamentals of the technologies, the course will explore the uses and significances emerging digital technologies in modern day life and theory and practical aspect of the digital technologies will be learnt.							
Course Outcomes:								
1.	Explaining the students about the fundamental concepts of digital technologies and associated technologies.							
2.	Providing the students about the significance and uses of several networking technologies such as the Internet, World Wide Web and cloud computing.							
3.	Develop understanding of key elements of computer networking and its usage for digital solutions which include Internet architecture, layer protocols, client-server architecture, etc.							
4.	Apply knowledge of Internet based applications and services, including digital platforms, to socio-technical problems.							
Course Content:								
UNIT I	Introduction: Artificial Intelligence							8 hrs.
UNIT II	Internet of Things (IoT)							7 hrs.
UNIT III	Blockchain							7 hrs.

	Meaning, Characteristics, Distributed system, Node, CAP theorem, Network/system types, Centralised vs Decentralised, Contest driven decentralisation.					
UNIT IV	Cloud Computing Cloud meaning, Cloud Computing meaning, Deployment models, Service models, Characteristics, Cloud computing Planning, Cloud computing technologies, Models					7 hrs.
UNIT V	Data Sciences Cyber Security					7 hrs.
UNIT VI	3D Printing and Design Virtual Reality (VR)					6 hrs.
Internal Assessment:						
CIA 1	Unit I, Unit II					
CIA 2	Assignment submission and/or presentation					
Textbooks:						
1. B. Patel & Lal B. Barik, 'Internet & Web Technology', Acme Learning Publishers						
2. D. Comer, "The Internet Book", Pearson Education, 2009.						
3. Godbole AS & Kahate A, "Web Technologies", Tata McGrawHill,2008.						
4. Greenlaw R and Hepp E "Fundamentals of Internet and www" 2nd EL, TataMcGrawHill,2007.						
5. Ivan Bayross, "HTML, DHTML, JavaScript, Perl CGI", 3rd Edition, BPB Publications.						
6. Jackson, "Web Technologies", Pearson Education, 2008.						
Reference Books:						
1. M. L. Young,"The Complete reference to Internet", Tata McGraw Hill, 2007.						
2. Vijay Madisetti, Arshdeep Bahga, Internet of Things, "A Hands-on Approach", University Press						
3. SRN Reddy, Rachit Thukral and Manasi Mishra, "Introduction to Internet of Things: A practical Approach", ETI Labs.						
4. Melanie Swan, "Block Chain: Blueprint for a New Economy", O'Reilly, 2015.						
5. Joel Grus, "Data Science from Scratch: First Principles with Python", O'Reilly Media						
6. Saha, S.K., "Introduction to Robotics, 2nd Edition, McGraw-Hill Higher Education, New Delhi, 2014.						
7. William Stallings, "Cryptography and Network Security", Pearson Education/PHI,						
PO-CO Compliance Matrix						
	PO1	PO2	PO3	PO4	PO5	PO6

CO1	3		3	3		3
CO2		2		3		3
CO3	3	3	3	2	3	3
CO4	2		3		3	2

*1: Low, 2: Medium, 3: High

Course: Digital Media (STI 413)		
TEACHING SCHEME	EXAMINATION SCHEME	CREDITS ALLOTTED
Theory: 4 hrs. per week	End Semester Examination: 60 marks Internal Assessment: 40 marks	Theory: 4
		Total: 4
Course Pre-requisites:		
1.	Must possess comprehensive thinking	
2.	Basics understanding on concepts of new media as well as the role of digital media technologies play in society	
Course Objectives:		
1.	The students will explore the basic concepts of new media as well as the role of digital media technologies play in society. Besides, the course will help the students to understand the impacts of new media on communication today.	
Course Outcomes:		
1.	Explain the basic concepts of digital and new media and its historical development in the Indian context.	
2.	Examine the role of digital media technologies on the contemporary society and the impact of new media on communications strategies.	
3.	Explore the changing nature of media communications and journalism, digital content and communications, social networking, micro-blogging, etc.	
4.	Apply digital media and associated technologies for creating online news portals, online blogs, podcasting, etc.	
Course Content:		

UNIT I	Introduction: Overview of online Communication & Internet: Meaning and definition, Features of Online Communication; Media: Meaning, scope, characteristics, application.	7 hrs.
UNIT II	Internet & Networking Internet: meaning, characteristics, Networking, ISP and browsers, Types of websites, Video conferencing, Webcasting, social networking, blogging and micro-blogging; History of New Media Unit	7hrs
UNIT III	New Media: Digital media and communication, ICT; Information Society, New World Information Order and E-governance; Media Convergence;	7 hrs.
UNIT IV	Emerging Trends in digital media Emerging Trends: Mobile Technology, Social Media & Web 2.0 Network theory; Public sphere; Wikipedia	
UNIT V	Content Journalism: Traditional vs Online Journalism-difference in news consumption; Selection of news content, presentation of news; Online News Writing & Editing, News Portals, Blogs, Chat, Video, Podcasting, live casting and mobile communication	7 hrs.
UNIT VI	Laws and Ethics: Cyber Crimes & Security: Types and case studies; WikiLeaks; CyberLaws & Ethics, Internet censorship in India, Comparison between America, and India. The student needs to submit soft news stories for websites or open individual blogs as a part of project.	7 hrs.
Internal Assessment:		
CIA 1	Unit I, Unit II	
CIA 2	Assignment submission and/or presentation	
Textbooks:		
1. LA Lievrouw, S Livingstone, Handbook of new media: Social shaping and consequences of ICTs, Sage 2002		
2. Martin Lister, New Media: A Critical introduction, Routledge, 2009		

3. Flew. Terry, New Media: An Introduction, Oxford Higher Education, 3rd, 2007						
4. Wendy Hui Kyong Chun, Thomas Keenan, 'New media, Old Media, A history and Theory reader, Routledge, 2006						
5. Carolina McCarthy, Facebook: Our targeted ads aren't creepy, The Social-CNET news, June 18, 2009						
Reference Books:						
1. Levinson. Paul, New New Media, Allyn & Bacon, 2nd, 2012						
2. Lev Manovich, The language of New Media, MIT Press, 2001						
3. Ronal Dewolk, Introduction to Online Journalism, Allyn & Bacon						
4. John Vernon Pavlik, New Media Technology, Allyn & Bacon						
5. Michael M. Mirabito, New Communication Technologies: Application						
PO-CO Compliance Matrix						
	PO1	PO2	PO3	PO4	PO5	PO6
CO1	3	3	3	3	2	
CO2	3	2	3	3		2
CO3	3	3	3	2	1	
CO4	2	2	3	2		3
*1: Low, 2: Medium, 3: High						

Course: Law and Digital Society (STI 414)		
TEACHING SCHEME	EXAMINATION SCHEME	CREDITS ALLOTTED
Theory: 4 hrs per week	End Semester Examination: 60 marks Internal Assessment: 40 marks	Theory: 4
		Total: 4
Course Pre-requisites:		
1	Must possess comprehensive thinking	
2	Skill in dealing with practical social problems and challenges related to Law implementation	
3	Knowledge of law structure and differentiation of digitization functions used in industry	
Course Objective:		

	To provide insights to the students regarding legality aspect of the increasing use if ICT in all walks of life.	
Course Outcomes: The students will be able to		
1	Explain legal aspects of cyber law and jurisprudence and their implications in anunbridled growth of digital technologies.	
2	Provide dispute resolution and legal jurisprudence on cyberspace in the Indian context, with various case examinations.	
3	Examine international and national perspectives of cyber law and its dimensions for several human rights and civil liberties such as right to privacy, right to data protection, etc.	
4	Apply legal frameworks relating to cyber law to examine different cybercrimes and threats such as hacking, digital forgery, cyber stalking/harassment, identity theft and fraud, etc. with concrete case studies.	
Course Content:		
UNIT I	Introduction: Digitization and its Impact in Society; Need for cyber law; CyberJurisprudence at International and Indian Level	7 hrs
UNIT II	International perspectives of Cyber Law: UN & International Telecommunication, Union (ITU) Initiatives ; Budapest Convention on Cybercrime; Asia-Pacific Economic Cooperation (APEC) ; Organization for Economic Co-operation and Development (OECD); World Bank; Commonwealth of Nations	7 hrs
UNIT III	Institutions: Organization for Economic Co-operation and Development (OECD); World Bank; Commonwealth of Nations	7 hrs
UNIT IV	Human Rights Perspectives of Cyber law: Freedom of Speech and Expression in, Cyberspace; Right to Access Cyberspace; Access to Internet; Right to Privacy; Right to Data Protection.	7 hrs
UNIT V	Cyber Crimes & Legal Framework: Hacking; Digital Forgery; Cyber Stalking/Harassment; Cyber Pornography; Identity Theft & Fraud; Cyber terrorism; Cyber Defamation; Different offences under IT Act, 2000	7 hrs

UNIT VI	Dispute Resolution: Dispute Resolution and Legal Jurisprudence on Cyberspace in India; Examination of various cases						7 hrs
Internal Assessment:							
CIA 1	Unit I, Unit II						
CIA 2	Assignment submission and/or presentation						
Text Books:							
3. Chris Reed & John Angel, Computer Law, OUP, New York, (2007).							
4. Justice Yatindra Singh, Cyber Laws, Universal Law Publishing Co, New Delhi, (2012).							
Reference Books:							
4. Verma S, K, Mittal Raman, Legal Dimensions of Cyber Space, Indian Law Institute, New Delhi, (2004)							
5. Jonthan Rosenoer, Cyber Law, Springer, New York, (1997).							
6. Sudhir Naib, The Information Technology Act, 2005: A Handbook, OUP, New York, (2011)							
7. S. R. Bhansali, Information Technology Act, 2000, University Book House Pvt. Ltd., Jaipur (2003).							
8. Vasu Deva, Cyber Crimes and Law Enforcement, Commonwealth Publishers, New							
	PO1	PO2	PO3	PO4	PO5	PO6	
CO1		1			2		
CO2	2		2				
CO3				1			
CO4		2				3	
*1: Low, 2: Medium, 3: High							

Course: Elective I-(STI-431)

TEACHING SCHEME			EXAMINATION SCHEME			CREDITS ALLOTTED		
Theory: 4 hrs. per week			End Semester Examination: 60 marks Internal Assessment: 40 marks			Practical: 4		
						Total: 4		
Course Pre-requisites:								
3.								
Course Objectives:								
Course Outcomes: The students will be able to: See the Elective Content offered by Department								
5.								
6.								
Course Content: See the Elective Content offered by Department								
UNIT I	Introduction:						8 hrs	
UNIT II							8 hrs	
UNIT III							8 hrs	
UNIT IV							7 hrs	
UNIT V							7 hrs	
UNIT VI							7 hrs	

Internal Assessment:						
CIA 1	Unit I, Unit II					
CIA 2	Assignment submission and/or presentation					
Text Books: See the Elective Content offered by Department						
Reference Books: See the Elective Content offered by Department						
PO-CO Compliance Matrix						
	PO1	PO2	PO3	PO4	PO5	PO6
CO1						
CO2						
CO3						
*1: Low, 2: Medium, 3: High						

Course: ICT-Lab /Workshop –Programming Concepts (STI 483)		
TEACHING SCHEME	EXAMINATION SCHEME	CREDITS ALLOTTED
Theory: 2 hrs per week	End Semester Examination: 60 marks Internal Assessment: 40 marks	Theory: 2
		Total: 2
Course Pre-requisites:		
1	Must possess analytical thinking	
2	Skill in dealing with practical problems and challenges related to programming	
3	Knowledge of coding and data analytics	
Course Objective:		
	To provide insights to the students regarding programming aspect python.	

Course Outcomes: The students will be able to		
1	Demonstrate abilities to use programming language skills such as Python to make a project that addresses problems in digitalised society.	
2	Write a project report that describes research problem, skills of programming languages for data analysis, and application to real life issues.	
Course Content:		
UNIT I	Introduction: Big Data and Hadoop	4 hrs
UNIT II	MapReduce: Meaning, Objective, Application	4 hrs
UNIT III	Hadoop Distributed File System: Meaning, Objective, HDFS Planning, Importance,	4 hrs
UNIT IV	SQOOP and Pig: Meaning, Objective, Application, relevance to data analytics	4 hrs
UNIT V	Hive Hadoop HA Meaning, Objective, Application, relevance to data science	3 hrs
UNIT VI	Mapreduce 2 or YARN Meaning, Objective, Application, relevance to data analytics	3 hrs
Internal Assessment:		
CIA 1	Unit I, Unit II	
CIA 2	Assignment submission and/or presentation	

Text Books:						
5. McKinney, W. (2013). Python for Data Analysis. Sebastopol, CA. O'Reilly Media.						
6. Bird, S., E. Klein & E. Loper. Natural Language Processing with Python. Sebastopol, CA. O'Reilly Media.						
Reference Books:						
1. White, Tom. (2015). Hadoop: The Definitive Guide. Shroff Publishers & Distributers Private Limited.						
2. Grover, Mark, Malaska, Ted, Seidman, Jonathan, & Shapira, Gwen (2015). Hadoop Application Architectures. O'Reilly Media Inc.						
	PO1	PO2	PO3	PO4	PO5	PO6
CO1		4		1	2	
CO2	2		3			2
*1: Low, 2: Medium, 3: High						

Course: Seminar / Term Paper / Case Study (STI 484)		
TEACHING SCHEME	EXAMINATION SCHEME	CREDITS ALLOTTED
Theory: 2 hrs per week	End Semester Examination: 60 marks Internal Assessment: 40 marks	Theory: 2
		Total: 2
Course Pre-requisites:		
1	Must possess comprehensive thinking	
2	Skill in dealing with practical/theoretical problems and challenges related to situations	
3	Knowledge analytical skills	
Course Objective:		
	To provide insights to the students regarding Seminar / Term Paper / Case Study	
Course Outcomes: The students will be able to		

1	Learning the soft skills to present before large audiences about the finding of their research.	
2	Learning the conduct of independent research on any topic of contemporary relevance.	
3	Preparing students to write dissertation in the last semester	
Course Content:		
UNIT I	Introduction: Scope, Meaning, Importance, Application, Relevance to the curriculum	4 hrs
UNIT II	Case Study: Meaning, Objective, Application, Case development, Case analysis	4 hrs
UNIT III	Seminar: Meaning, Objective, Importance, How to prepare presentation.	4 hrs
UNIT IV	Seminar Presentation: Student presentation and participation	4 hrs
UNIT V	Seminar Presentation: Student presentation and Participation	3 hrs
UNIT VI	Seminar Presentation: Student presentation and Participation	3 hrs
Internal Assessment:		
CIA 1	Unit I, Unit II	
CIA 2	Assignment submission and/or presentation	
Text Books:		
Robert Jolles (1993) How to Run Seminars & Workshops: Presentation Skills for Consultants, Trainers and Teachers		

Reference Books:						
1. Barun K. Mitra (2016) personality Development and Soft Skills, Oxford University Press; Second edition						
	PO1	PO2	PO3	PO4	PO5	PO6
CO1	1	3	1	1		
CO2	2	2		1	1	2
CO3	1		3	2	1	
*1: Low, 2: Medium, 3: High						

Course: Society, Networks and Social Networks (STI 501)		
TEACHING SCHEME	EXAMINATION SCHEME	CREDITS ALLOTTED
Theory: 4 hrs per week	End Semester Examination: 60 marks Internal Assessment: 40 marks	Theory: 4
		Total: 4
Course Pre-requisites:		
1	Must possess comprehensive thinking	
2	Skill in dealing with practical/theoretical problems and challenges related to social networks	
3	Knowledge systematic skills	
Course Objective:		
	To provide insights to the students regarding Social Networks	
Course Outcomes: The students will be able to		
1	Explain key concepts and principles of social theories regarding social relationships and networks.	
2	Learn applications of importing, visualising and transforming real world network data.	

3	Apply various models and techniques of social network analysis using empirical social dataset and case studies.	
Course Content:		
UNIT I	Introduction: The concepts of Networks and Social Networks; The Sources of Social Power	7 hrs
UNIT II	Culture of Connectivity: Engineering Sociality in a culture of connectivity Rise of the Network Society; Googlisation and Networks	7 hrs
UNIT III	Rise of the Network Society: Googlisation and Networks, Models of Network Structures	7 hrs
UNIT IV	Model Structure Models of Network Structures, Network Analysis: Some Basic Principles	7 hrs
UNIT V	Network Theory: Network Theory and Social Structures, Network Theory and Organisation Theory, Scope, Applications.	7 hrs
UNIT VI	Privacy and Security: Networks and Privacy, Networks, Politics and Anonymity, Network Theory and the NET, Networks Effects	7 hrs
Internal Assessment:		
CIA 1	Unit I, Unit II	
CIA 2	Assignment submission and/or presentation	
Text Books:		
1. Barnes, J.A (1972), Social Networks, in Addison-Wesley Module in Anthropology, 26:1-29.		
2. Borgatti, Stephen P. Everett, Martin G. Johnson, Jeffrey C. (2013) Analyzing Social Networks. 2013. Thousand Oaks, CA: Sage.		
Reference Books:		

2. Burt, Ronald (1980), Innovation as a Structural Interests: Rethinking the Impact of Network Position on Innovation Adoption, Social Networks, 2 (4): 327-355						
3. Burt, Ronald (1980), Models of Network Structures, Annual Review of Sociology, 6:79-141						
	PO1	PO2	PO3	PO4	PO5	PO6
CO1	1	3	1		1	
CO2	2			2		1
CO3	1	1	3		2	

Course: Elective II (STI 532)		
TEACHING SCHEME	EXAMINATION SCHEME	CREDITS ALLOTTED
Theory: 4 hrs. per week	End Semester Examination: 60 marks Internal Assessment: 40 marks	Practical: 4
		Total: 4
Course Pre-requisites:		
4.		
Course Objectives:		
Course Outcomes: The students will be able to: See the Elective Content offered by Department		
7.		
8.		
Course Content: See the Elective Content offered by Department		

UNIT I	Introduction:					8 hrs
UNIT II						8 hrs
UNIT III						8 hrs
UNIT IV						7 hrs
UNIT V						7 hrs
UNIT VI						7 hrs
Internal Assessment:						
CIA 1	Unit I, Unit II					
CIA 2	Assignment submission and/or presentation					
Text Books: See the Elective Content offered by Department						
Reference Books: See the Elective Content offered by Department						
PO-CO Compliance Matrix						
	PO1	PO2	PO3	PO4	PO5	PO6
CO1	3	3	3	3	3	3
CO2	3	2	3	3	3	2
CO3	3	3	3	2	3	3
*1: Low, 2: Medium, 3: High						

Course: Elective III (STI 533)		
TEACHING SCHEME	EXAMINATION SCHEME	CREDITS ALLOTTED
Theory: 4 hrs. per week	End Semester Examination: 60 marks Internal Assessment: 40 marks	Practical: 4
		Total: 4
Course Pre-requisites:		
5.		
Course Objectives:		
Course Outcomes: The students will be able to: See the Elective Content offered by Department		
9.		
10.		
Course Content: See the Elective Content offered by Department		
UNIT I	Introduction:	8 hrs
UNIT II		8 hrs
UNIT III		8 hrs
UNIT IV		7 hrs
UNIT V		7 hrs
UNIT VI		7 hrs

Internal Assessment:						
CIA 1	Unit I, Unit II					
CIA 2	Assignment submission and/or presentation					
Text Books: See the Elective Content offered by Department						
Reference Books: See the Elective Content offered by Department						
PO-CO Compliance Matrix						
	PO1	PO2	PO3	PO4	PO5	PO6
CO1	3	3	3	3	3	3
CO2	3	2	3	3	3	2
CO3	3	3	3	2	3	3
*1: Low, 2: Medium, 3: High						

Course: STI 536: Elective IV (STI 534)		
TEACHING SCHEME	EXAMINATION SCHEME	CREDITS ALLOTTED
Theory: 4 hrs. per week	End Semester Examination: 60 marks Internal Assessment: 40 marks	Practical: 4
		Total: 4
Course Pre-requisites:		
6.		
Course Objectives:		
Course Outcomes: The students will be able to: See the Elective Content offered by Department		
11.		

12.						
Course Content: See the Elective Content offered by Department						
UNIT I	Introduction:					8 hrs
UNIT II						8 hrs
UNIT III						8 hrs
UNIT IV						7 hrs
UNIT V						7 hrs
UNIT VI						7 hrs
Internal Assessment:						
CIA 1	Unit I, Unit II					
CIA 2	Assignment submission and/or presentation					
Text Books: See the Elective Content offered by Department						
Reference Books: See the Elective Content offered by Department						
PO-CO Compliance Matrix						
	PO1	PO2	PO3	PO4	PO5	PO6
CO1	3	3	3	3	3	3
CO2	3	2	3	3	3	2
CO3	3	3	3	2	3	3
*1: Low, 2: Medium, 3: High						

Course: Other Department Elective I (STI 535)

TEACHING SCHEME		EXAMINATION SCHEME	CREDITS ALLOTTED
Theory: 4 hrs. per week		End Semester Examination: 60 marks Internal Assessment: 40 marks	Practical: 4
			Total: 4
Course Pre-requisites:			
7.			
Course Objectives:			
Course Outcomes: The students will be able to: See the Elective Content offered by Department			
13.			
14.			
Course Content: See the Elective Content offered by Department			
UNIT I	Introduction:		8 hrs
UNIT II			8 hrs
UNIT III			8 hrs
UNIT IV			7 hrs
UNIT V			7 hrs

UNIT VI		7 hrs				
Internal Assessment:						
CIA 1	Unit I, Unit II					
CIA 2	Assignment submission and/or presentation					
Text Books: See the Elective Content offered by Department						
Reference Books: See the Elective Content offered by Department						
PO-CO Compliance Matrix						
	PO1	PO2	PO3	PO4	PO5	PO6
CO1	3	3	3	3	3	3
CO2	3	2	3	3	3	2
CO3	3	3	3	2	3	3
*1: Low, 2: Medium, 3: High						

Course: Data Analysis Lab: R (STI 585)		
TEACHING SCHEME	EXAMINATION SCHEME	CREDITS ALLOTTED
Theory: 4 hrs per week	End Semester Examination: 60 marks Internal Assessment: 40 marks	Theory: 4
		Total: 4
Course Pre-requisites:		
1	Must possess computing skills	
2	Skill in dealing with practical/theoretical problems and challenges related to statistical packages	

3	Knowledge analytical skills	
Course Objective:		
	This course aims to equip students with the data analysis techniques that take the advantage of recent developments in computational power and analytical skills within the discipline of social sciences.	
Course Outcomes: The students will be able to		
1	Use of statistical software called R for the purpose of social sciences and business data	
2	Apply fundamental techniques of data handling and analysis using R	
3	Understand the relevance and application of data analysis in social sciences using basic predictive analysis and mining techniques	
4	Explain evidence-based and data-driven approach to socially relevant research and policies.	
Course Content:		
UNIT I	Introduction: Basic fundamentals, installation and use of R and its functions,	7 hrs
UNIT II	Data Analysis: Overview of data analysis and its components, Introduction to basic statistical techniques using R, Introduction to fundamentals of Data Mining principles and their Applications	7 hrs
UNIT III	Data Preparation and Exploration Data identification and data import from online sources, Types of variables, sorting, ordering of data, Functions and matrix operations, logical operators, Visualization Techniques	7 hrs
UNIT IV	Quantitative techniques: Data Analysis using basic Univariate, Bivariate statistical tests and interpretation, ANOVA and other statistical tests for different hypotheses	7 hrs
UNIT V	Supervised Learning Methods: Multiple Linear Regression, Logistic Regression, Classification analysis & Regression Trees, Dimension reduction techniques	7 hrs

UNIT VI	Performance Metrics and Analysis: Performance Metrics for Prediction and Classification Unsupervised Learning Methods: Cluster analysis, Association rules, Data-driven project using socially relevant topics						7 hrs
Internal Assessment:							
CIA 1	Unit I, Unit II						
CIA 2	Assignment submission and/or presentation						
Text Books:							
3. Introduction to Statistics and Data Analysis - With Exercises, Solutions and Applications in R By Christian Heumann, Michael Schomaker and Shalabh, Springer, 2016							
4. A Beginner's Guide to R (Use R) By Alain F. Zuur, Elena N. Ieno, Erik H.W.G. Meesters, Springer 2009							
Reference Books:							
4. Business Analytics: The Science of Data-Driven Decision Making By U Dinesh Kumar, Wiley, 2017							
	PO1	PO2	PO3	PO4	PO5	PO6	
CO1		3	1	2		2	
CO2	2	1		2	2	1	
CO3	1		3		2		
CO4	1	3		3		3	
*1: Low, 2: Medium, 3: High							

Course: Spatial Data Infrastructure Lab Managerial Economics (STI 586)		
TEACHING SCHEME	EXAMINATION SCHEME	CREDITS ALLOTTED
Practical: 2 hrs. per week	End Semester Examination: 60 marks Internal Assessment: 40 marks	Practical: 2
		Total: 2
Course Pre-requisites:		
1.	Must possess analytical and critical thinking.	
2.	Knowledge of graphical structure and basic understanding of Geographic Information Systems.	
Course Objectives:		
1.	To provide insights to the students regarding tools and techniques of economics to enable them to appreciate its relevance in business decision-making.	
Course Outcomes: The students will be able to		
1.	Learn and appreciate the applications of SDI technologies.	
2.	Understand the geospatial meta-data standard contents and geodata clearing houses.	
3.	Learn about and gain experience in the technology for distributing geographical information using the Internet.	
Course Content:		
UNIT I	Introduction: Overview of Arcgis: Arcmap, Arccatalog and ArctoolBox	4 hrs
UNIT II	Attribute Data Input: Creation of Schema, Tables, Data Definition, and Data Input, Data Updating, Queries on Tables, Simple-Complex Query with Two or More Tables Using SQL. Queries Using Union, Intersection, Join Etc. Operations. Use of MS-Excel and MS Access	4 hrs
UNIT III	Spatial Data Input: Vector Data Formats with File Extensions. Scanning, On- Screen Digitization, Editing, Topology	4 hrs

	Creation, Line and Area Measurements, Data Attribution					
UNIT IV	Geodatabase in ArcCatalog and ArcMap: Feature Dataset, Feature Classes, Import of Data, Spatial Data Formats, Shape/Coverage Files and Layers, Data Frames, Maps, Managing TOC					4 hrs
UNIT V	Georeferencing Data: Coordinate Systems, Datum Conversions, Map Projections, Types, Storing- Viewing Projection Information					4 hrs
UNIT VI	Working with Layers in ArcMap: Building Templates, Classification, Displaying Qualitative and Quantitative Values, Labeling Features and Map Creation; GPS: GPS Survey, Data Import, Processing and Mapping					4 hrs
Internal Assessment:						
CIA 1	Unit I, Unit II					
CIA 2	Assignment submission and/or presentation					
Text Books:						
7. Chang, K. T. (2008): Introduction to Geographic Information Systems, Avenue of the Americas, McGraw-Hill, New York						
8. Environmental Systems Research Institute, Inc. (1998): Understanding GIS: The ARC/INFO Method, ESRI Press, Redland						
9. Kresse, W. and Danko, D. (2002): Springer Handbook of Geographic Information, Springer Drecht, London						
Reference Books:						
1. Ahmed, E. L., Rabbany (2002): Introduction to Global Positioning System, Artech House, Boston						
2. Bao, J., Tsui, Y. (2005): Fundamentals of Global Positioning System Receivers, John Wiley Sons, Inc., Hoboken						
PO-CO Compliance Matrix						
	PO1	PO2	PO3	PO4	PO5	PO6

CO1	3	3	3	3	3	3
CO2	3	2	3	3	3	2
CO3	3	3	3	2	3	3
*1: Low, 2: Medium, 3: High						

Course: Other Department Elective II (STI 536:)		
TEACHING SCHEME	EXAMINATION SCHEME	CREDITS ALLOTTED
Theory: 4 hrs. per week	End Semester Examination: 60 marks Internal Assessment: 40 marks	Practical: 4
		Total: 4
Course Pre-requisites:		
8.		
Course Objectives:		
Course Outcomes: The students will be able to:		
15.		
16.		
Course Content:		
UNIT I	Introduction:	8 hrs
UNIT II		8 hrs

UNIT III		8 hrs				
UNIT IV		7 hrs				
UNIT V		7 hrs				
UNIT VI		7 hrs				
Internal Assessment:						
CIA 1	Unit I, Unit II					
CIA 2	Assignment submission and/or presentation					
Text Books:						
Reference Books:						
PO-CO Compliance Matrix						
	PO1	PO2	PO3	PO4	PO5	PO6
CO1	3	3	3	3	3	3
CO2	3	2	3	3	3	2
CO3	3	3	3	2	3	3
*1: Low, 2: Medium, 3: High						

Course: Dissertation (STI 509)		
TEACHING SCHEME	EXAMINATION SCHEME	CREDITS ALLOTTED
Theory: 16 hrs. per week	End Semester Examination: 60 marks Internal Assessment: 40 marks	Practical: 16

		Total: 16
Course Pre-requisites:		
1.	Completed a course in Research Methodology for Business. Must possess knowledge of Skill Enhancement Courses and Ability Enhancement Courses of Digital Society.	
2.	Must have research aptitude and technical writing ability.	
Course Objectives:		
1.	To provide the students an opportunity to learn application of different concept learned under different functional areas of Digital Society	
2.	To apply research and analytical tools to provide alternatives/frameworks/solutions/ advancement/ innovativeness to digital society related issues/problems /concepts/ functions.	
Course Outcomes: The students will be able to:		
1.	Write dissertation based on the fieldwork carried out under the supervision of faculty members and external mentorship, if any.	
2.	Demonstrate thesis writing skills that include problems/gaps identification, research design and methodology, field survey, analytical capabilities using dataset, results and real-life application.	
Course Content:		
UNIT I	Dissertation Proposal Writing and Presentation	16 hrs
UNIT II	Review of Literature, Gaps Identification, Critical Analysis	16 hrs
UNIT III	Research Design, Tool Development, Field Testing, Tool Finalisation	16 hrs
UNIT IV	Data Collection	16 hrs
UNIT V	Fieldwork Data Analysis/ Content Analysis and Coding	16 hrs
UNIT VI	Report Writing and Presentation	16 hrs
	<i>Description: The students are required to work on specific topics / problems assigned by the faculty supervisor. The students will be working for the project under the supervision of faculty supervisor. The students are required to submit their dissertation</i>	

	<i>report as per guidelines prescribed by the department at the end of the specified period. The students are also required to attend viva voce examination during/ end of the Semester IV of the programme.</i>					
Internal Assessment:						
CIA 1	Unit I, Unit II					
CIA 2	Assignment submission and/or presentation					
Text Books:						
1. Paltridge, B. (2002). Thesis and dissertation writing: An examination of published advice and actual practice. <i>English for Specific Purposes</i> , 21(2), 125-143.						
2. Foss, S. K. (2015). <i>Destination dissertation: A traveler's guide to a done dissertation</i> . Rowman & Littlefield.						
3. Swetnam, D., & Swetnam, R. (2004). <i>Writing your dissertation</i> . Oxford: How to books.						
4. Mauch, J., & Park, N. (2003). <i>Guide to the successful thesis and dissertation: A handbook for students and faculty</i> . CRC Press.						
Reference Books:						
1. Davis, G. B., & Parker, C. A. (1979). <i>Writing the Doctoral Dissertation. A Systematic Approach</i> .						
2. Bowen, G. A. (2005). Preparing a qualitative research-based dissertation: Lessons learned. <i>The qualitative report</i> , 10(2), 208-222.						
PO-CO Compliance Matrix						
	PO1	PO2	PO3	PO4	PO5	PO6
CO1	3	3	3	3	3	3
CO2	3	2	3	3	3	2
*1: Low, 2: Medium, 3: High						

Elective Courses

Course: Project Management and Evaluation (STI433)		
TEACHING SCHEME	EXAMINATION SCHEME	CREDITS ALLOTTED
Theory: 4 hrs per week	End Semester Examination: 60 marks Internal Assessment: 40 marks	Theory: 4
		Total: 4
Course Pre-requisites:		
1	Must possess analytical skills	
2	Skill in dealing with practical/theoretical problems and challenges related to statistical packages	
3	Knowledge Planning and scheduling skills	
Course Objective:		
	This course aims to equip students with the opportunity to students to develop a systematic understanding of key skills and concepts essential to effective project management	
Course Outcomes: The students will be able to		
1	Identify and explore different theoretical concepts of project management and evaluation.	
2	Explain key components of social/socio-technical system and their interrelationships.	
3	Apply systems thinking concepts, in general, and soft systems methodology, in particular, to model social/socio-technical complexity.	
4	Examine diverse perspectives while framing engineering and management challenges and approaches, particularly those related to requirements engineering and project management in large/complex projects involving digital technologies.	
5	Demonstrate capabilities to draft requirement specifications and system design documents leading to RFPs.	
Course Content:		
UNIT I	Introduction: Need, Scope, Meaning, Project Management, and the Project Cycle, Needs Assessment – Concept Mapping	7 hrs

UNIT II	Project Planning: Needs Assessment Tools, Methodologies, Stakeholder Analysis, Project Design and The Logical Framework	7 hrs
UNIT III	Data Preparation and Exploration Data identification and data import from online sources, Types of variables, sorting, ordering of data, Functions and matrix operations, logical operators, Visualization Techniques	7 hrs
UNIT IV	Evaluation: Monitoring and Evaluation: Framework Analysis (World Bank, DFID, UNDP, and other established frameworks)	7 hrs
UNIT V	Project Operations: Project Management in Local Government, Innovation in Project Management	7 hrs
UNIT VI	Special Topic in Project Management: Ethics and Project Management, Scope, Meaning, Application, importance.	7 hrs
Internal Assessment:		
CIA 1	Unit I, Unit II	
CIA 2	Assignment submission and/or presentation	
Text Books:		
5. Jack Meredith, Samuel J. Mantel Jr. (2017). Project Management- A Managerial Approach- John Welly and Sons		
6. Nicholas, John M. (2012). Project Management for business and Technology, Prentice Hall of India Pvt. Ltd.		
Reference Books:		
5. Ludwij, Ernest E. (1974). Applied Project Mgt. for the Process Industries, Gulf Publishing Co.; Houston		
6. Mattoo, PK. (1978). Project formulation in developing countries. The Macmillan Co. of India Ltd.		
7. Clifton, David S. & Fyffe, David E. Project Feasibility Analysis. (1977). A guide to profitable New Ventlar. John Wiley & Sons		

8. Jackson, Michael, C. (2003). Systems Thinking: Creative Holism for Managers. John

	PO1	PO2	PO3	PO4	PO5	PO6
CO1		3	1	1		
CO2	2	1		2		1
CO3			3		2	
CO4	1			3		
CO5		3			2	
*1: Low, 2: Medium, 3: High						

Course: ICT and Development		
TEACHING SCHEME	EXAMINATION SCHEME	CREDITS ALLOTTED
Theory: 4 hrs. per week	End Semester Examination: 60 marks Internal Assessment: 40 marks	Theory: 4
		Total: 4
Course Pre-requisites:		
1.	Must have the basic understanding of narratives, processes, and approaches of socio-economic and environmental development.	
2.	Basic knowledge of ICT/digital technology interfaces with society.	
Course Objectives:		
1.	To introduce students to the debates and practices surrounding the uses of Information and Communication Technologies (ICTs) in Developmental process in the Global South.	

2.	To draw on the resources from Anthropology, Development Studies, Economics, Geography, and History in order to examine the theoretical and conceptual frameworks that underpin development - as a practice, as a subject of research, and as a discourse.	
3.	To provide an opportunity to reflect on local appropriateness, social inclusion and the range of arguments for and against any ICT for development project in a variety of contexts.	
Course Outcomes: The students will be able to:		
1.	Explain the debates and practices surrounding the uses of information and communications technology and associated digital technologies in the development discourse.	
2.	Provide various theoretical and conceptual frameworks underpinning the usage of technology in the development process drawn from development studies, economics, geography and political science.	
3.	Explore local appropriateness, social inclusion and the range of arguments for and against any ICT for development projects in a variety of contexts.	
4.	Demonstrate critical thinking in examining the implications of ICT and other digital technological interventions for social development and public sector reforms.	
Course Content:		
UNIT I	Introduction to Development and ICT: Uneven Development and the Origins of ICTD: Unevenness in development; Digital divides	8 hrs
UNIT II	Development Theories: Dependency, Modernisation, Structuralism, Socialism, Neo-Marxism and Neoliberalism	7 hrs
UNIT III	Critiques of ICTD: Feminist, Postcolonialist, and Poststructuralist Critiques	7 hrs
UNIT IV	ICTs as interventions for social development: <ul style="list-style-type: none"> • The study of Millennium Development Goals (MDGs) and Sustainable Development Goals (SDGs) • ICTs as interventions for social development, Public Sector Reforms 	8 hrs
UNIT V	Development in the Network Society:	7 hrs

	Digital divides, Value chain disintermediation and e-commerce					
UNIT VI	ICT&D: The Digital Spaces of Work and Life: <ul style="list-style-type: none"> • Market creation, expansion and inclusion through ICTs, Rural Market Creations • Financial Inclusions and Mobile Money • Knowledge Economies, Technology Entrepreneurship, and Innovation • Digital Labour and Development 					8 hrs
Internal Assessment:						
CIA 1	Unit I, Unit II, Unit III					
CIA 2	Assignment submission and/or presentation					
Text Books:						
1. Burrell, J. & Toyama, K. 2009. What Constitutes Good ICTD Research? Information Technologies & International Development, 5(3): 82-94.						
2. Castells, M., 2003. The Rise of the Fourth World in Held, D. and McGrew, A. (Eds). The Global Transformations Reader. Oxford: Blackwell. pp. 430-439						
3. Crow, B., Zlatunich, N. & Fulfroost, B. 2009. Mapping Global Inequalities: Beyond Income Inequality to Multi-Dimensional Inequalities. Journal of International Development, 21:10511065.						
Reference Books:						
1. Heeks, R. 2002. i-Development not e-Development: Special Issue on ICTs and Development. Journal of International Development, 14(1): 1-11.						
2. Heeks, R. 2009. The ICT4D 2.0 Manifesto: Where Next for ICTs and International Development? Manchester: Centre for Development Informatics, Working Paper No. 42 (online resource).						
PO-CO Compliance Matrix						
	PO1	PO2	PO3	PO4	PO5	PO6
CO1	3	3	3	3	3	3
CO2	3	2	3	3	3	2
CO3	3	3	3	2	3	3
CO4	3	3	3	3	3	3
*1: Low, 2: Medium, 3: High						

Course: Internet Society and Economy		
TEACHING SCHEME	EXAMINATION SCHEME	CREDITS ALLOTTED
Theory: 4 hrs. per week	End Semester Examination: 60 marks Internal Assessment: 40 marks	Theory: 4
		Total: 4
Course Pre-requisites:		
1.	Must have studied Information Technology and Society course (STI 401)	
2.	Appreciation of the interfaces of internet, society, and economy	
Course Objectives:		
1.	To examine how the emergence and evolution of the Internet, alongside a number of significant changes in the technological and political-economic environment, have transformed both the economy and societies at large.	
2.	To understand the new terms of competition in the information and communication technology (ICT) industries on a global scale.	
3.	To discuss on the social history of the Internet, followed by an analysis of the emergence of a global information economy and the role of ICTs in global markets.	
Course Outcomes: The students will be able to:		
1.	To understand the critical role and effect of Internet in bringing the changes in socio-economic-political environment.	
2.	To learn about approaches to understand inter-linkages of ICT, Global Markets and Economy.	
3.	To critically understand the roles and interfaces of Internet, Society and Economy.	
Course Content:		
UNIT I	Introduction <ul style="list-style-type: none"> • Lessons from the History of the Internet • Understanding of Networked Society • Understanding of the Concept, Characteristics, Nature and Scope of Digital Economy 	8 hrs

UNIT II	Digital Economy <ul style="list-style-type: none"> • Macro and Micro Economic Issues in Digital Economy • Policy and Regulations under Digital Economy • Innovation in the Digital Economy 	7 hrs
UNIT III	Digital Technology and Society <ul style="list-style-type: none"> • The Internet, Big Data, and Economic Policy • Artificial Intelligence and Prospects of Economic Growth • Globalization: The Internet and The Cloud 	7 hrs
UNIT IV	Data, Policies and E-Commerce <ul style="list-style-type: none"> • Data Localisation and Data Sovereignty • APP Economy: Rules, Policy and Challenges before Societies • Electronic commerce 	8 hrs
UNIT V	Issues of Digital Economy <ul style="list-style-type: none"> • Threat to Digital Economy • World-wide cases of Digital Economy • Internet Poverty 	7 hrs
UNIT VI	Dimensions of Internet-Society-Economy <ul style="list-style-type: none"> • Digital Divide in Digital Economy • Privacy, Openness, and Transparency under Digital Economy • Case Studies as Suggested by Instructor 	8 hrs
Internal Assessment:		
CIA 1	Unit I and Unit II	
CIA 2	Assignment submission and/or presentation	
Text Books:		
1. Abbate, Jane (1999) Inventing the Internet, Cambridge, MA: MIT Press, pp. 43-146.		
2. Arora, Payal (2019), The Next Billion Users : Digital Life beyond the West. Cambridge: Harvard University Press		
3. Atkinson, Robert D. and Stephen J. Ezell (2012) Innovation Economics: The Race for Global Advantage, New Haven, CT: Yale University		

Press.

4. Brynjolfsson, Erik and Adam Saunders (2009) *Wired for Information: How Information Technology Is Reshaping the Economy*, Cambridge, MA: MIT Press.
5. Castells, Manuel (1996, second edition, 2009). *The Rise of the Network Society, The Information Age: Economy, Society and Culture Vol. I.* Malden, MA; Oxford, UK: Blackwell.
6. Castells, Manuel (1997, second edition, 2009). *The Power of Identity, The Information Age: Economy, Society and Culture Vol. II.* Malden, MA; Oxford, UK: Blackwell.
7. Castells, Manuel (1998, second edition, 2010). *End of Millennium, The Information Age: Economy, Society and Culture Vol. III.* Malden, MA; Oxford, UK: Blackwell.
8. Castells, Manuel (2001) *The Internet Galaxy*, Oxford: Oxford University Press.

Reference Books:

1. David, Paul (2002) “The evolving accidental information super-highway,” *Oxford Review of Economic*
2. Don Tapscott (1996) *The Digital Economy : promise and peril in the age of networked intelligence*, New York : McGraw Hill
3. Himanen, Pekka (2002) *The Hacker Ethic: A Radical Approach to the Philosophy of Business*, New York: Random House
4. Martin and John Zysman (Spring 2016) “The Rise of the Platform Economy,” *Issues in Science and Technology*, 32:3.” At [http://issues.org/32-3/the-rise-of-the- platformeconomy/](http://issues.org/32-3/the-rise-of-the-platformeconomy/)
5. Naughton, John (2014) *From Gutenberg to Zuckerberg: Disruptive Innovation in the Age of the Internet*, New York: Quercus.
6. Peter Cowhey and Jonathan Aronson (2017) *Digital DNA: Disruption and the Challenges for Global Governance*, New York, Oxford. Prologue and Chapters 1-4, pp. xi-xxi and 3- 93.
7. Peter F. Cowhey and Jonathan D. Aronson, (2009) *Transforming Global Information and Communication Markets*, Cambridge, MA, MIT Press.

PO-CO Compliance Matrix

	PO1	PO2	PO3	PO4	PO5	PO6
CO1	3	3	3	3	3	3
CO2	3	2	3	3	3	2
CO3	3	3	3	2	3	3

*1: Low, 2: Medium, 3: High

Course: Spatial Data Infrastructure: Policy, Structure and Operation		
TEACHING SCHEME	EXAMINATION SCHEME	CREDITS ALLOTTED
Theory: 4 hrs. per week	End Semester Examination: 60 marks Internal Assessment: 40 marks	Theory: 4
		Total: 4
Course Pre-requisites:		
1.	Must possess analytical thinking.	
2.	Basic knowledge of Geographic Information Systems, its processes and applications.	
Course Objectives:		
1.	To learn the Spatial data infrastructure, which is widely recognized as an important aspect in the growing information society.	
2.	To provide the opportunity to enhance knowledge and skills regarding the SDI tool for continents, countries, regions and local governments to better organize, plan and manage their natural, cultural and economic resources.	
3.	To make students learn the SDI policy, structure and operation in India.	
4.	To impart learning on the application of GIS technologies.	
Course Outcomes: The students will be able to:		
1.	Explain the theoretical concepts, policy and governance aspects of the term 'SpatialData Infrastructures.	
2.	Understand the geospatial meta-data standard contents and geodata clearing houses.	
3.	Explore how spatial data infrastructure is organized in India and internationally, including discussion about geodata plan and policy.	
4.	Learn about and gain experience in the technology for distributing geographical information using the Internet.	
Course Content:		
UNIT I	<ul style="list-style-type: none"> Introduction to Spatial Data Infrastructure: Background, History, Scope andSignificance; Meta-data standard contents 	8 hrs
UNIT II	<ul style="list-style-type: none"> Introduction to Geographical Information Services: Techniques, Process andPractices 	7 hrs

UNIT III	<ul style="list-style-type: none"> • GIS and its application in National Development • SDI in India: Policy, Organisation, Data, Technologies, Standards, Delivery Mechanisms, Financial and Human Resources 	7 hrs
UNIT IV	<ul style="list-style-type: none"> • The Study of Institutions: NSDI, SDI, National Resource Information Systems (Dept. of Space), National Map Policy; Digital Cartographic Database (Survey of India) 	8 hrs
UNIT V	<ul style="list-style-type: none"> • National Resources Data Management System (Dept of Science & Technology) and other initiatives through GSI, FSI, NATMO etc. 	7 hrs
UNIT VI	<ul style="list-style-type: none"> • Governance issues of SDI in India; SDI in Socio-Economic Development of the country • Technology for geodata publishing using the Internet such as Geography Markup Language, Web Map Server, Web Feature Server. 	8 hrs
Internal Assessment:		
CIA 1	Unit I and Unit II	
CIA 2	Assignment submission and/or presentation	
Text Books:		
1. Bishr, Y. (1998). Overcoming the Semantic and Other Barriers to GIS Interoperability, International Journal of Geographical Information Science, 12 (4):299–314.		
2. Budhathoki, N.R. and Z.N. Budić (2007). “Expanding Spatial Data Infrastructure Knowledge Base in Research and Theory,” in Harlan Onsrud (Ed). Advancing Spatial Data Infrastructure Concepts. California: ESRI Press.		
3. de Man, W.H.E. (2000). Institutionalisation of Geographic Information Technologies: Unifying Concept?, Cartography and Geographic Information Science, 27 (2): 139–152.		
4. de Man, W.H.E. (2006). Understanding SDI: Complexity and Institutionalization, International Journal of Geographical Information Science, 20 (3): 329–343		
5. DST (2005). National Map Policy. New Delhi: Department of Science and Technology, Government of India, at: http://dst.gov.in/ , (accessed 13 July 2005).		
Reference Books:		
1. Enemark, S. and I. Williamson (2004). Capacity Building in Land Administration: A Conceptual Approach, Survey Review, 39 (294): 639–650.		
2. Feeney, M.E.F. (2003). “SDIs and Decision Support”, in Ian Williamson, Abbas Rajabifard, and Mary-ellen F. Feeney (Eds.). Developing Spatial Data Infrastructures: From Concept to Reality. Boca Raton: CRC Press, pp. 195– 210.		
3. Georgiadou, Y. and R. Groot (2002). Policy Development and Capacity Building for Geo-Information Provision: A Global Goods		

Perspective, GIS@development: The monthly magazine on geographic information science, 6 (7): 33–40.						
4. Georgiadou, Y., S.K. Puri and S. Sahay (2005). Towards a Potential Research Agenda to Guide the Implementation of Spatial Data Infrastructures: A Case Study from India, International Journal of Geographical Information Science, 19(10): 1113–1130.						
PO-CO Compliance Matrix						
	PO1	PO2	PO3	PO4	PO5	PO6
CO1	3	3	3	3	3	3
CO2	3	2	3	3	3	2
CO3	3	3	3	2	3	3
CO4	3	3	3	3	3	3
*1: Low, 2: Medium, 3: High						

Course: Management Information System ()		
TEACHING SCHEME	EXAMINATION SCHEME	CREDITS ALLOTTED
Theory: 4 hrs. per week	End Semester Examination: 60 marks Internal Assessment: 40 marks	Theory: 4
		Total: 4
Course Pre-requisites:		
1.	Must possess critical and analytical thinking.	
2.	Appreciation for information technology-based management system for better organizational functions.	
Course Objectives:		
1.	To help the students to understand management information system (MIS).	
2.	To make them learn about the uses and management in any organization through MIS.	
Course Outcomes: The students will be able to:		
1.	Learn the concepts of management information system and their impact on business organizations.	

2.	Explain the technologies involved in management information systems, including hardware, software, networking, and databases.	
3.	Understand the application of various sub-systems and organizing principles in the development of information systems.	
4.	Write a project report that explains the design and development of information systems using real life scenarios.	
Course Content:		
UNIT I	<ul style="list-style-type: none"> • Organisations and Information Systems • Concepts of Management Information Systems • Information Systems and Management Strategy 	8 hrs
UNIT II	<ul style="list-style-type: none"> • Electronic Commerce, Electronic Business, Electronic Governance • Managing Information Systems • Ethical and Social Issues and MIS 	8 hrs
UNIT III	<ul style="list-style-type: none"> • Information Technology Infrastructure and Choices • Networking and Telecommunication • Information Systems Security and Control 	8 hrs
UNIT IV	<ul style="list-style-type: none"> • Information Systems Development and Project Management • Managing Data Resources • Business Process Integration and Enterprise Systems 	7 hrs
UNIT V	<ul style="list-style-type: none"> • Decision Support Systems • ICT for Development and E-Governance 	7 hrs
UNIT VI	<ul style="list-style-type: none"> • The Society of the Internet • Open Source Software 	7 hrs
Internal Assessment:		
CIA 1	Unit I and Unit II	
CIA 2	Assignment submission and/or presentation	
Text Books:		
1. Gordon Davis, Management Information System: Conceptual Foundations, Structure and Development, Tata McGraw Hill, 21st Reprint 2008.		
2. Analysis and Design of Information Systems by James Senn		

3. Ashok Arora & Bhatia: Management Information Systems (Excel)
4. Haag, Cummings and Mc Cubbrey, Management Information Systems for the Information Age, McGraw Hill, 2005. 9th edition, 2013.
5. James O Brien, Management Information Systems – Managing Information Technology in the Ebusiness enterprise, Tata McGraw Hill, 2004.
6. Jessup & Valacich: Information Systems Today (Prentice Hall India)
7. Kenneth C. Laudon and Jane Price Laudon, Management Information Systems –Managing the digital firm, PHI Learning Pearson Education, PHI, Asia, 2012.
8. L. M. Prasad: Management Information Systems (Sultan Chand) Management Information Systems – Dr Sahil Raj – Pearson Publications

Reference Books:

1. Management Information Systems – Girdhar Joshi – Oxford Publications
2. Management Information Systems – Hitesh Gupta – International Book House Ltd
3. Management Information Systems – M.Jaiswal & M.Mittal – Oxford Publications
4. MIS a Conceptual Framework by Davis and Olson
5. Rahul de, MIS in Business, Government and Society, Wiley India Pvt Ltd, 2012
6. Raplh Stair and George Reynolds, Information Systems, Cengage Learning, 10th Edition,
7. Raymond McLeod and Jr. George P. Schell, Management Information Systems, Pearson Education, 2007.
a. Robert Schultheis and Mary Summer, Management Information Systems – The Managers View, Tata McGraw Hill, 2008.
8. Turban, McLean and Wetherbe, Information Technology for Management–Transforming Organizations in the Digital Economy, John Wiley, 6th Edition, 2008.

PO-CO Compliance Matrix

	PO1	PO2	PO3	PO4	PO5	PO6
CO1	3	3	3	3	3	3
CO2	3	2	3	3	3	2
CO3	3	3	3	2	3	3
CO4	3	3	3	3	3	3

*1: Low, 2: Medium, 3: High

Course: Digital Marketing		
TEACHING SCHEME	EXAMINATION SCHEME	CREDITS ALLOTTED
Theory: 4 hrs per week	End Semester Examination: 60 marks Internal Assessment: 40 marks	Theory: 4
		Total: 4
Course Pre-requisites:		
1	Must possess analytical skills	
2	Skill in dealing with practical/theoretical problems and challenges related to digital marketing	
3	Basic knowledge of Marketing Management	
Course Objective:		
	<ul style="list-style-type: none"> To examine timely concerns at the intersection of marketing and internet technology, have idea about increase customer value through digital media 	
Course Outcomes: The students will be able to		
1	Describe the strategic marketing planning process in organizations and link it with the use of digital marketing.	
2	Interpret the use of SEO, PPC and Display ads in framing the digital marketing strategies.	
3	Examine the power of tools like Social Media Marketing, E-mail marketing and Mobile marketing in getting strategic advantage over competitors.	
4	Identify the ways firms engage customers and measure the results of the strategic digital marketing efforts.	
Course Content:		
UNIT I	Introduction: Digital marketing campaign planning: Role of digital marketing within the marketing mix, principles of digital marketing campaigns, supporting hardware, platforms available and the implications of technological advancements in digital, marketing campaigns,	7 hrs
UNIT II	Digital Marketing Techniques: Digital media channels and techniques: search marketing, email marketing, social media, and viral marketing, online and	

	display advertising.	
UNIT III	Understanding Digital Marketing Activities : Digital marketing communication mix, search engine optimization (SEO), marketing implications of banner Ads and mobile Ads, online public relation activities, affiliate sites and, networks, Online social customer service.	7 hrs
UNIT IV	Monitoring Digital Marketing Activities : Role of marketing research in monitoring digital marketing, measuring digital influence, evaluating customer, satisfaction and involvement in digital media, tracking studies, web analytics tools, monitoring visitor and content interactions	7 hrs
UNIT V	E-Marketing Strategy and Issues: Analysing trends of internet marketing in India, determining target markets, E-branding, retailing vs E-tailing, B2B E-Commerce,	7 hrs
UNIT VI	Ethics in Digital Marketing: Social & Ethical issues related to E-commerce., Case Studies based on the above curriculum.	6 hrs
Internal Assessment:		
CIA 1	Unit I, Unit II	
CIA 2	Assignment submission and/or presentation	
Text Books:		
<ol style="list-style-type: none"> 1. Charlesworth, A. (2014). Digital marketing: A practical approach. Routledge. 2. Chaffey, D., & Ellis-Chadwick, F. (2019). Digital marketing. Pearson UK. 3. Frost, R. D., & Strauss, J. (2016). E-marketing. Routledge. 		
Reference Books:		
<ol style="list-style-type: none"> 1. Laudon, K. C., & Traver, C. G. (2016). E-commerce: business, technology, society. 		

2. Ryan, D. (2016). Understanding digital marketing: marketing strategies for engaging the digital generation. Kogan Page Publishers.

	PO1	PO2	PO3	PO4	PO5	PO6
CO1	2	3	1	2		2
CO2	2	1	2	2	2	1
CO3	1	2	3		2	
CO4	1	3	2	3		3

*1: Low, 2: Medium, 3: High

Course: Privacy in the Digital Age		
TEACHING SCHEME	EXAMINATION SCHEME	CREDITS ALLOTTED
Theory: 4 hrs. per week	End Semester Examination: 60 marks Internal Assessment: 40 marks	Theory: 4
		Total: 4
Course Pre-requisites:		
1.	Basic knowledge about digital privacy and related contemporary debates.	
2.	Must possess critical analysis and thinking.	
Course Objectives:		
1.	To understand the issue of 'privacy in the digital age' which is becoming ever more important in today's context due to the extensive digitization of various dimensions of our lives. While personal information may well be utilized to improve customer/citizen services, increase revenues, and lower business costs, it can also be easily misused and lead to violations of privacy. Important legal, regulatory, and ethical issues have emerged, prompting the need for an urgent and consistent response by societies awash in digitized data.	
2.	To appreciate the digital technological advancements that intensified the capacity to create, collect, disseminate, and analyse digital information.	

3.	To assess the mechanism of digital businesses thriving on leveraging the personal information to track preferences, identify potential clients and provide better services.	
4.	To understand how Governments collect and analyze personal information to improve service provision and in the name of national security.	
5.	To highlight the concerns of 'privacy in the digital age' and their implications.	
6.	To provide an overview of the technology, economics, business, regulatory, and socio-political dimensions of personal information and privacy.	
Course Outcomes: The students will be able to:		
1.	Understand the history and evolution of privacy	
2.	Explain technological evolution around private information collection, distribution and analysis	
3.	Learn the day-to-day use cases of privacy violation of digital footprints of individuals	
4.	Learn the economics and value of information and markets for information	
5.	Understand regulatory and legal dimensions of privacy and the societal response to privacy	
6.	Apply technical approaches to managing and protecting privacy	
Course Content:		
UNIT I	<ul style="list-style-type: none"> •A brief history of Privacy •Definition and Taxonomy of Privacy- Individuals, Enterprises, Communities and Societies, Meta Data Privacy, Information Privacy 	8 hrs
UNIT II	<ul style="list-style-type: none"> •Technologies of Privacy •Economics of Privacy 	8 hrs
UNIT III	<ul style="list-style-type: none"> •Economics of Information Security •Privacy by design and privacy ethics 	8 hrs
UNIT IV	<ul style="list-style-type: none"> •Societal dimensions of privacy design •Privacy regulatory regimes across geographies 	7 hrs
UNIT V	<ul style="list-style-type: none"> •Privacy in different domains •Privacy in IoT/ Healthcare 	7 hrs
UNIT VI	<ul style="list-style-type: none"> • Case Studies based on above curriculum 	7 hrs

Internal Assessment:		
CIA 1	Unit I and Unit II	
CIA 2	Assignment submission and/or presentation	
Text Books:		
1. Lepore, Jill. (2013). “The Prism. Privacy in an age of publicity.” Annals of Surveillance. The New Yorker, June 24.		
2. Samuel D. Warren, Louis D. Brandeis. 1890. “The Right to Privacy.” Harvard Law Review, Vol. 4(5), pp. 193-220.		
3. Daniel J. Solove, A Taxonomy of Privacy, 154 U. Pa. L. Rev. 477 (2006).		
4. Gunes Acar, Christian Eubank, Steven Englehardt, Marc Juarez, Arvind Narayanan, and Claudia Diaz. 2014. The Web Never Forgets: Persistent Tracking Mechanisms in the Wild. In Proceedings of the 2014 ACM SIGSAC Conference on Computer and Communications Security (CCS '14).		
5. Arvind Narayanan and Vitaly Shmatikov (2010) Myths and fallacies of “Personally Identifiable Information”. Communications of the ACM 53, 6 (June 2010).		
6. Jessica Su, Ansh Shukla, Sharad Goel, and Arvind Narayanan. (2017) De- anonymizing Web Browsing Data with Social Networks. In Proceedings of the 26th International Conference on World Wide Web (WWW '17).		
7. Ashwin Machanavajjhala and Daniel Kifer (2015) Designing statistical privacy for your data. Communications of the ACM 58, 3 (February 2015).		
8. Acquisti, A., John, L. K., & Loewenstein, G. (2013). What is privacy worth?. The Journal of Legal Studies, 42(2), 249-274.		
Reference Books:		
1. Acquisti, A., Taylor, C., & Wagman, L. (2016). The economics of privacy. Journal of Economic Literature, 54(2), 442-92.		
2. Anderson, R., & Moore, T. (2006). The economics of information security. Science, 314(5799), 610-613.		
3. Arora, A., Krishnan, R., Nandkumar, A., Telang, R., & Yang, Y. (2004, May). Impact of vulnerability disclosure and patch availability-an empirical analysis. In Third Workshop on the Economics of Information Security (Vol. 24, pp. 1268-1287).		
4. Madden, M., Gilman, M., Levy, K., & Marwick, A. E. (2017). “Privacy, poverty and big data: A matrix of vulnerabilities for poor Americans.” Washington University Law Review, 95(1), 53–125.		
5. Marwick, A. E., & boyd, d. (2018). “Understanding Privacy at the Margins – Introduction.” Special Section on Privacy at the Margins, International Journal of Communication, 12.		
6. Levy, K. & Barocos, S. (2018). “Refractive Surveillance: Monitoring Customers to		
PO-CO Compliance Matrix		

	PO1	PO2	PO3	PO4	PO5	PO6
CO1	3	3	3	3	3	3
CO2	3	2	3	3	3	2
CO3	3	3	3	2	3	3
CO4	3	3	3	3	3	3
CO5	3	2	3	3	3	2
CO6	3	3	3	2	3	3

*1: Low, 2: Medium, 3: High

Course: Big Data and Public Policy		
TEACHING SCHEME	EXAMINATION SCHEME	CREDITS ALLOTTED
Theory: 4 hrs. per week	End Semester Examination: 60 marks Internal Assessment: 40 marks	Theory: 4
		Total: 4
Course Pre-requisites:		
1.	Must possess critical and analytical thinking.	
2.	Knowledge of digital platforms and appreciation of big data.	
Course Objectives:		
1.	To familiarize students with big data analysis as a tool for addressing substantive research questions around Big Data.	
2.	To discuss the processes of analysis of these data, as well as understanding the associated technical, conceptual, and ethical challenges.	
3.	To understand the strengths and limitations of big data research using real-world examples.	

4.	To engage students in case study exercises in which small groups of students develop and present a big data concept for a specific real-world case.	
5.	To familiarize students with the format of big data.	
6.	To provide a hands-on experience in handling and analyzing large, complex data structures.	
Course Outcomes: The students will be able to:		
1.	To enhance interdisciplinary understanding with Big-Data.	
2.	To understand the use of Big-Data in policy making process.	
3.	To recognize and appreciate the importance of Big-Data and their application in academic, industrial, social, economic, and environmental context.	
Course Content:		
UNIT I	• Introduction – What is Big Data? Handling and Processing Big Data, Methodological Challenges and Problems	8 hrs
UNIT II	• Epistemology of Big Data, Ethics of Big Data	7 hrs
UNIT III	• The Big Data and Public Policy: Inter-relationship and Challenges, Case Studies, Data Protection Policy and Law, Open Data	7 hrs
UNIT IV	• Policy, Politics and Governance in Digital Era: Digital Government, Development of E-Governance, E-Democracy, Digital Citizenship, E-Parliament, E-Rulemaking, Digital Nation State.	8 hrs
UNIT V	• Case Study Analysis: The Analysis of CMIE, Census, NFHS, NSS, Employment Data and other Economic Data Sets like RBI Data, India Public Finance Statistics.	8 hrs
UNIT VI	• Use of GIS and Spatial Analysis for Public Policy	7 hrs
Internal Assessment:		
CIA 1	Unit I and Unit II	
CIA 2	Assignment submission and/or presentation	
Text Books:		
1.	Matthew J. Salganik. (2017). Bit by Bit: Social Research in the Digital Age. Princeton University Press.	
2.	Cathy O’Neil. (2016). Weapons of Math Destruction: How Big Data Increases Inequality and Threatens Democracy. Penguin Books.	
3.	Rob Kitchin. (2014). The Data Revolution: Big Data, Open Data, Data Infrastructures and Their Consequences. SAGE Publications.	
4.	Dutcher, Jenna. (2014). What is Big Data? UC Berkeley Data Science Blog.	

5. Press, Gil. (2014). 12 Big Data Definitions: What's Yours? Forbes Blog.

Reference Books:

1. Manovich, Lev. (2012). Trending: The Promises and the Challenges of Big Social Data. Debates in the Digital Humanities, edited by Matthew K. Gold. The University of Minnesota Press.
2. Lazer, David, Alex Pentland, Lada Adamic, Sinan Aral, Albert-László Barabási, Devon Brewer, Nicholas Christakis, Noshir Contractor, James Fowler, Myron Gutmann, Tony Jebara, Gary King, Michael Macy, Deb Roy, and Marshall Van Alstyne. (2009). Computational Social Science. Science 323(5915): 721-723.
3. Bollier, David (2010). The Promise and Peril of Big Data. The Aspen Institute Communications and Society Program.
4. Cate, Fred H. (2014). The Big Data Debate. Science 346(6211): 818-818.
5. Lazer, David, Ryan Kennedy, Gary King, and Alessandro Vespignani. (2014). The Parable of Google Flu: Traps in Big Data Analysis. Science 343(6176): 1203-1205.
6. Lazer, David. (2015). The Rise of the Social Algorithm. Science 348(6239): 1090-1091.
7. Ulfelder, Jay. (2015). The Myth of Comprehensive Data. Blog Post.

PO-CO Compliance Matrix

	PO1	PO2	PO3	PO4	PO5	PO6
CO1	3	3	3	3	3	3
CO2	3	2	3	3	3	2
CO3	3	3	3	2	3	3

*1: Low, 2: Medium, 3: High