



**JINDAL GLOBAL  
BUSINESS SCHOOL**  
INDIA'S FIRST MULTI-DISCIPLINARY GLOBAL BUSINESS SCHOOL



**O.P. Jindal Global University**  
*A Private University Promoting Public Service*  
**NAAC Accreditation - 'A' Grade**

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Jindal Global Business School  
*Course Outline*

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Course Title	Economics of Technological Change
Core or Elective	Elective
Program and Batch	BBA 2023
Semester & Academic Year	Fall 2026
Credits	3
Discipline/Area	Economics/Social Science & Humanities (SSH)
Name of the Faculty Member/Course Instructor	Prof. Minali Grover
Contact Details of the Faculty Member	Minali.grover@jgu.edu.in
Contact Details of Support Staff	jgbs-ec@jgu.edu.in
Faculty Member's Open Office Day/s & Time	One hour post the class

### Introduction to the Course

In an era defined by rapid technological advancement, understanding the relationship between technology, labor, and economic systems has become an essential competency for business leaders. This elective course critically examines how different technological changes historically shape economies, countries, and businesses. The course begins by tracking the long-run technological transformation from the mechanisation of the Industrial Revolution to current dynamics of automation and Artificial Intelligence. By understanding this historical context, students gain a richer perspective on the economic and political forces that shape how technology is adopted, regulated, and enforced in the modern business environment. The course pedagogy combines lectures, case studies, debates, research articles, and student's presentations.

### Course Learning Objectives

**At the end of the course, students should be able to**

1. CLO1-Understand economic foundations of technological change.
2. CLO2- Identify and apply key economic concepts to analyse real-world technological phenomena.
3. CLO3- Critically analyse business strategy for different sector in technology-intensive markets
4. CLO4- Understand the impact of different technological changes in the labour market

### Programme Competency Goals

<b>BBA Programme Competency Goals</b>	<b>BBA Programme Learning Objectives (PLOs)</b>
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(PCGs)			
		Students will be able to	
1	<b>Responsible Global Citizenship:</b> Ability to understand the interplay between local and global issues and to act with sensitivity towards ethical and social issues	1. Understand local business issues	
		2. Understand global business issues	
		3. Demonstrate sensitivity towards ethical issues	
		4. Demonstrate sensitivity towards social issues	
2	<b>Effective communication:</b> Ability to effectively exchange ideas and information	5. Present their ideas with clarity	
		6. Write in a coherent manner	
		7. Use technology for communication	
3	<b>Critical Thinking:</b> Ability to identify, analyze business problems and propose effective solutions	8. Identify main issues of business problems	
		9. Examine information from different sources	
		10. Draw inferences from analysis	
4	<b>Teamwork:</b> Ability to work and contribute effectively in group -settings	11. Understand the factors to work effectively in groups	
		12. Contribute effectively in groups	

### PLO-PCG Assessments Mapping Matrix

Program Learning Objectives (PLOs)	Program Competency (PCGs)	Goals	Course Assessment Item
This course helps you to develop the following Program Learning Outcomes:	This course helps you to develop the following Program Competency Goals:		This learning outcome will be assessed in the following items
PLO1, PLO2	PCG1 PCG3		A1, A2, A3, A4
PLO8, PLO9, PLO10	PCG3		A1, A2
PLO1, PLO2, PLO3, PLO4	PCG1		A3
PLO3, PLO4, PLO8	PCG1 PCG3		A4

## Evaluation Schema

The course grade will be determined based on:

Assessment Task	Weightage (Percentage)	Nature (Individual/Group)	Week of Assessment	PLOs to be Assessed
A1 Class Participation	10%	Individual	1-14 <sup>th</sup> week	PLO8, PLO9
A2 Project + Presentation	30% (15+15)	Group	10-14 <sup>th</sup> week	PLO8, PLO9, PLO10
A3 Peer Review Assignment	10%	Individual	10-14 <sup>th</sup> week	PLO1, PLO2, PLO3, PLO4
A4 Quiz	20%	Individual	11 <sup>th</sup> week	PLO3, PLO4, PLO8
A5 Endterm Examination	30%	Individual	In the JGU Examination period/week	PLO3, PLO4, PLO8

### Description of Assessments:

**A1 Class Participation-** Class Participation (10 marks – continuous assessment) - Students are expected to participate in class activities and discussions. They will be marked on their discipline, attentiveness, and enthusiasm in initiating class discussions, asking questions and solving problem statements along with attending guest lectures.

**A2 Project and Presentation:** (15 + 15 marks – 15 min presentation)- The students are supposed to choose a sector or industry and analyze the technological changes that happen in that industry and write a report on the findings. A presentation will be given for the same submitted report. The presentation must carry a thorough understanding of advancements in technology, employment patterns and future implications. (Take home assignment)

### Presentation Rubrics

Criteria/Level	Poor (1-2)	Fair (3-5)	Good (6-7)	Excellent (8-10)
Understanding of Material	Lack of understanding of core concepts of reading	Limited understanding of core concepts of reading	Adequate understanding of core concepts of reading	Clear understanding of core concepts of reading
Logical Flow/Organization of ideas	No sense of organization	There is a sense of organization, although some of the organizational tools are used weakly or missing	Good overall organization includes the main organizational tools.	Well-thought out organized. Includes title, introduction of main idea, transitions, and conclusion.
Depth and breadth of analysis and discussion	Information presented is very superficial. No analysis or	Information presented is inadequate and misses many	Information centres on some of the points and covers them	Information presented covers all the points in depth and is

	implications drawn	points. Some analysis and discussion.	adequately. Adequate analysis and discussion.	accurate. Good analysis and well-rounded discussion
Communication Skill	Reading from the PPT, no engagement with audience, poor communication	Referring to ppt very often, some engagement with audience, fair communication	Referring to ppt occasionally, good engagement with audience, good communication	Using ppt only as cue, excellent engagement with audience, excellent communication

**A3 Peer Review Assignment** (10 marks)- Students will be assigned one group presentation to review and provide in-depth analysis about the improvements, strength, weaknesses, and feedback. The following elements will be tested; accuracy of evaluation (3 marks), depth of feedback (4 marks), and use of course concepts (3 marks).

**A4 Quiz** (20 marks)- MCQ or short answers on theoretical questions, in class exam during the course tenuew.

**A5 End term examination** (30 marks)- The end term examination will be of **30 marks of 1.5 hours duration**. This will be an invigilated exam according to the mode, modalities and process as decided by CoE.

### Teaching Method

The course will have a judicious mix of lectures, storytelling, experiential exercises, and cases. Here the onus of learning will be with the student, and the instructor will be a facilitator. Instead of learning ‘what to do’, the cases will also be used as examples of real-world phenomena where issues arise, and good and bad practices are seen. The key to learning this way is to see many examples and situations and learn inductive as well as deductive ways from students’ and managers' different experiences.

Some relevant research articles will also be provided in addition to the textbook, the students are supposed to read them carefully, the instructor will help the students to understand the basis of various present-day models as they appear in the textbook

### Textbook / Other Readings

#### Books:

Frey, C. B. (2019). The technology trap: Capital, labor, and power in the age of automation.

N.Gregory Mankiw, Macroeconomics, Eighth Edition, Havard University

The Second Machine Age, Work, Progress and Prosperity in a time of Brillant Technologies. Erik Brynjolfsson and Andre McAfee.

Ford, M. (2015). Rise of the Robots: Technology and the Threat of a Jobless Future. Basic books.

West, D. M. (2018). The future of work: Robots, AI, and automation. Bloomsbury Publishing USA.

Learning by Doing the real connection between innovation, wages, and wealth by James Bessen (2015)

Capitalism, Socialism, and Democracy by Joseph A. Schumpeter, Routledge, Taylor & Francis e-library (2003)

Claudia Goldin & Lawrence F. Katz, The Race Between Education and Technology

The Rise and Fall of American Growth, Robert J. Gordon

### Session Plan

<b>Session Details</b>	<b>Topics</b>	<b>PLOs Covered</b>
<b>Session 1</b>	<b>Course Overview: Why Technology Shapes Economies</b>	PLO1, PLO2
Objective of the session	To understand how technological development shapes economies and determine growth	
Subtopics to be covered	Important developments in Human History, Scope of the course, who gains and who loses?	
Readings	The Technology Trap, Introduction, Pg 1-28 The Second Machine Age Ch – 1, Pg8-16	
Case Title & Number	Not Applicable	
Pedagogy	Lecture and Class Discussion	
<b>Session 2</b>	<b>Invention versus Implementation</b>	PLO-1, PLO-2
Objective of the session	To understand the differences between invention of a technology and it's implementation	
Subtopics to be covered	Technology v/s Original Inventions, Mass v/s Elite Knowledge, Knowledge v/s ideas, and Dynamic v/s Statis Technical Knowledge	
Readings	Learning by Doing: The Real Connection between Innovation, Wages and Wealth, Ch-1, More than Inventions Pg-9-22	
Case Title & Number	Not Applicable	
Pedagogy	Lecture-based, and Class Discussion	
<b>Session 3</b>	<b>Economic Theories of Technological Change: Solow and Endogenous Growth</b>	PLO-1, PLO-8
Objective of the session	Theories of Technological change in economics	
Subtopics to be covered	Technological progress, Solow Model, Endogenous growth theory	
Readings	Mankiw, Ch-9	
Case Title & Number	Not Applicable	
Pedagogy	Lecture and Class Discussion	
<b>Session 4</b>	<b>Economic Theories of Technological Change: Schumpeter</b>	PLO-1, PLO-8
Objective of the session	Theories of Technological change in economics	
Subtopics to be covered	Total factor productivity; Creative Destruction, sources of economic growth	
Readings	Mankiw, Ch-9 Capitalism, Socialism, and Democracy, Ch-7	
Case Title & Number	Not Applicable	
Pedagogy	Lecture and Class Discussion	
<b>Session 5</b>	<b>Technology &amp; Inequality</b>	PLO-3, PLO-4

Objective of the session	To understand who benefits from technological change	
Subtopics to be covered	Skill-biased technical change (SBTC); capital-labour substitution; distributional consequences	
Readings	Learning by Doing, Ch-8 Autor, D. (2014), 'Skills, Education and the Rise of Earnings Inequality', Science	
Case Title & Number	(Optional): Acemoglu & Restrepo (2022), 'Tasks, Automation and the Rise in US Wage Inequality', Econometrica	
Pedagogy	Lecture and Class Discussion	
<b>Session 6</b>	<b>Technology &amp; Inequality</b>	PLO-4
Objective of the session	To understand the impact of some of the technological changes on inequality based on occupation, gender, and sector	
Subtopics to be covered	Skilled versus unskilled jobs, inequality,	
Readings	The Race Between Education and Technology, Ch-1	
Case Title & Number	Not Applicable	
Pedagogy	Lectures, Classroom Discussion	
<b>Session 7</b>	<b>Steam Engine and Printing Press as Engine of Growth</b>	PLO-9
Objective of the session	To understand the contribution of printing press and steam engine on economic growth, urban growth, and productivity	
Subtopics to be covered	Steam engine, economic growth, labour productivity	
Readings	The Technology Trap Ch- 1, Pg 41-51 <i>(Optional)</i> Dittmar, J. E. (2011). Information technology and economic change: the impact of the printing press. The Quarterly Journal of Economics, 126(3), 1133-1172. <i>(Optional)</i> Crafts, N. (2004), 'Steam as a General Purpose Technology', Economic Journal	
Case Title & Number	Not Applicable	
Pedagogy	Class discussion	
<b>Session 8</b>	<b>Mechanisation &amp; the Birth of the Factory System</b>	PLO-1, PLO-2
Objective of the session	To understand the growth of factory system	
Subtopics to be covered	Factory system, rise of machines, railroad network	
Readings	The Technology Trap Ch- 4, Pg 97-111	
Case Title & Number	Not Applicable	
Pedagogy	Lecture and Class Discussion	
<b>Session 9</b>	<b>Labor Displacement &amp; the Engels Pause</b>	PLO-8
Objective of the session	To understand the impact and acceptance of technology changes	
Subtopics to be covered	Luddite riots, Engel's pause, replacing to enabling	

	technological change	
Readings	The Technology Trap Ch- 5, Pg 97-111	
Case Title & Number	Not Applicable	
Pedagogy	Lecture and Class Discussion	
<b>Session 10</b>	<b>Guest Lecture - 1</b>	PLO-1, PLO-8
Objective of the session	Understand the changes in the manufacturing process with advent of industrial robots	
Subtopics to be covered	On the basis of guest session theme	
Readings	Not Applicable	
Case Title & Number	Not Applicable	
Pedagogy	Reflexive Discussion	
<b>Session 11</b>	<b>Mass Production and Assembly Line + Quiz 1</b>	PLO4, PLO10
Objective of the session	To understand the importance of assembly line as a technological advancement	
Subtopics to be covered	Mass production, factory system, assembly line, entry of female workers in workforce	
Readings	The Technology Trap Ch- 6	
Case Title & Number	Not Applicable	
Pedagogy	Lecture and Class Discussion	
<b>Session 12</b>	<b>Fordism, Taylorism &amp; the Rise of the Consumer Economy</b>	PLO-4
Objective of the session	To understand how technology entered in daily lives of households	
Subtopics to be covered	Consumer economy, standard of living, time-use	
Readings	Rise and Fall of American Growth, Ch-8	
Case Title & Number	Not Applicable	
Pedagogy	Lecture-based, Class Discussion	
<b>Session 13</b>	<b>Technological Change and Female Participation in Workforce</b>	PLO4
Objective of the session	To understand the entry of females in the workforce by mechanisation of household chores	
Subtopics to be covered	Mechanisation of household chores, female labour force, paid work, dual-income households	
Readings	The Technology Trap Ch- 6 (Only Discussion) Why "More Work for Mother?" Knowledge and Household Behavior, 1870-1945, Joel Mokyr (2000)	
Case Title & Number	Not Applicable	
Pedagogy	Lecture and Class Discussion	
<b>Session 14</b>	<b>Technology and Jobs - 1</b>	PLO8, PLO9

Objective of the session	Skill-biased technological change (SBTC)	
Subtopics to be covered	SBTC, routine and non-routine tasks, manual and cognitive jobs, task intensity of jobs	
Readings	Autor, D. H. (2015). Why are there still so many jobs? The history and future of workplace automation. <i>Journal of economic perspectives</i> , 29(3), 3-30.	
Case Title & Number	Not Applicable	
Pedagogy	Lecture and Class Discussion	
<b>Session 15</b>	<b>Technology and Jobs - 2</b>	PLO8, PLO9
Objective of the session	Job and Income polarisation	
Subtopics to be covered	Missing middle-level occupation, skill wage premium	
Readings	The rise of the Robots, Ch-4	
Case Title & Number	Not Applicable	
Pedagogy	Lecture and Class Discussions	
<b>Session 16</b>	<b>Case Study and Debate: Was Industrial Revolution good for workers?</b>	PLO2, PLO-10
Objective of the session	To relate technological changes with income and inequality	
Subtopics to be covered	Lessons from Industrial Revolution, income inequality, skill	
Readings	The Race between Technology and Education by Goldin and Katz, Pg: 301-305 The Technology Trap Ch- 8	
Case Title & Number	Not Applicable	
Pedagogy	Lecture and Class Discussions	
<b>Session 17</b>	<b>Geography of Jobs</b>	PLO-1, PLO-2
Objective of the session	To understand agglomeration benefits and concentration of skill in cities	
Subtopics to be covered	Agglomeration economics, geographical distribution of industrial robots	
Readings	A Review of Enrico Moretti's: The New Geography of Jobs by Edward Glaeser	
Case Title & Number	Not Applicable	
Pedagogy	Lecture and Class Discussion	
<b>Session 18</b>	<b>Globalisation and Offshoring</b>	PLO-4
Objective of the session	To understand how ICT enabled offshoring of routine tasks from developed to developing countries	
Subtopics to be covered	Offshoring, routine tasks, globalisation	
Readings	Autor, D. (2015), "Why Are There Still So Many Jobs?", Journal of Economic Perspectives	
Case Title & Number	Not Applicable	
Pedagogy	Lecture-based and Class Discussions	

<b>Session 19</b>	<b>Impact of Computer Revolution on Geography of Jobs</b>	PLO-1, PLO-2, PLO-9, PLO-10
Objective of the session	To understand how new technology leads to emergence of new jobs	
Subtopics to be covered	Geography of jobs, emergence of new occupations, computer revolution	
Readings	Technology Trap, Ch-10, Pg 256-263, Did the Computer Revolution shift the fortunes of U.S. cities? Technology stocks and the geography of new jobs by Thor Berger, Carl Benedikt Frey	
Case Title & Number	Not Applicable	
Pedagogy	Lecture-based and Class Discussion	
<b>Session 20</b>	<b>Guest Lecture – 2</b>	PLO-8
Objective of the session	Understand the changes in an organisation with advent of Artificial Intelligence	
Subtopics to be covered	On the basis of guest session theme	
Readings	Not Applicable	
Case Title & Number	Not Applicable	
Pedagogy	Reflective Discussions	
<b>Session 21</b>	<b>Artificial Intelligence</b>	PLO-8
Objective of the session	To understand the advancement of AI and relate to past innovations	
Subtopics to be covered	Polanyi's Paradox, risk of automation, Amara's Law, application of Amara's law	
Readings	The Technology Trap, Ch-12 (Optional) The future of employment: How susceptible are jobs to computerisation?	
Case Title & Number	Not Applicable	
Pedagogy	Lecture and Class Discussions	
<b>Session 22</b>	<b>Applications of AI + Quiz 2</b>	PLO-2, PLO-8
Objective of the session	To understand the uses and applications of AI in real-world	
Subtopics to be covered	Machine Learning and Big Data, Autonomous Vehicles, Virtual Reality, Chatbots & Personal Assistants,	
Readings	The Future of Work, Ch-2	
Case Title & Number	Not Applicable	
Pedagogy	Lecture and Class Discussions	
<b>Session 23</b>	<b>Industries of the Future</b>	PLO-2, PLO-8
Objective of the session	To understand the regional and industrial differences of technology on labour markets	
Subtopics to be covered	Regional, economy, and industry insights	

Readings	World Economic Forum – Future of Jobs Report (Chapter 5)	
Case Title & Number	Not Applicable	
Pedagogy	Class Discussion	
<b>Session 24</b>	<b>What can be done? Policy Suggestions for AI – 1</b>	PLO-3, PLO-4
Objective of the session	To understand policy initiatives that can improve skill and training of workers	
Subtopics to be covered	Road to Riches, Education and Training	
Readings	Technology Trap, Ch-13	
Case Title & Number	Not Applicable	
Pedagogy	Lecture and Class Discussions	
<b>Session 25</b>	<b>What can be done? Policy Suggestions for AI – 2</b>	PLO-3, PLO-4
Objective of the session	To understand policy initiatives that can improve skill and training of workers	
Subtopics to be covered	Road to Riches, Wage Insurance, Tax Credits, Regulation, Relocation	
Readings	Second Machine Age, Ch-2	
Case Title & Number	Not Applicable	
Pedagogy	Lecture and Class Discussions	
<b>Session 26</b>	<b>Debate &amp; Synthesis: Can Policy Fix the Technology Trap?</b>	PLO-4, PLO-3
Objective of the session	To discuss on whether education reform, wage insurance, tax credits, and regulation can adequately address AI-driven displacement	
Subtopics to be covered	Policy suggestion, Artificial intelligence, policy reform,	
Readings	Revisit: Technology Trap, Ch. 13; Second Machine Age, Ch. 12	
Case Title & Number	NA	
Pedagogy	Class Discussions	
<b>Session 27</b>	<b>Student Presentations – 1</b>	PLO8, PLO9, PLO10
Objective of the session	Students choose a sector/industry and analyse the impact of technological changes in that sector on various economics outcomes such as, output, employment, innovation, and layoffs. Critically analyses contemporary affairs through conceptual lens.	
Subtopics to be covered	NA	
Readings	NA	
Case Title & Number	Project allotted in the Initial Sessions	
Pedagogy	Class Discussions	
<b>Session 28</b>	<b>Student Presentations - 2</b>	PLO8, PLO9,

Objective of the session	Students choose a sector/industry and analyse the impact of technological changes in that sector on various economics outcomes such as, output, employment, innovation, and layoffs. Critically analyses contemporary affairs through conceptual lens.	PLO10
Subtopics to be covered	NA	
Readings	NA	
Case Title & Number	Project allotted in the Initial Sessions	
Pedagogy	Class Discussions	
<b>Session 29</b>	<b>Reading &amp; Revision Week/ Examination Week*</b>	PLO-9, PLO-10
Objective of the session	Course Revision and Doubt Clearing	
Subtopics to be covered	NA	
Readings	NA	
Case Title & Number	NA	
Pedagogy	NA	
<b>Session 30</b>	<b>Reading &amp; Revision Week/ Examination Week*</b>	PLO-9, PLO-10
Objective of the session	Course Revision and Doubt Clearing	
Subtopics to be covered	NA	
Readings	NA	
Case Title & Number	NA	
Pedagogy	NA	

\*Elective Endterm Examinations may take place in the last week of classes.

## Disability Support

JGU endeavours to make all its courses accessible to students. The Disability Support Committee (DSC) has identified conditions that could hinder a student's overall wellbeing. These include physical and mobility-related difficulties, visual impairment, hearing impairment, mental health conditions, and intellectual/learning difficulties, e.g., dyslexia and dyscalculia. Students with any known disability needing academic and other support are required to register with the Disability Support Committee (DSC) by following the procedure specified at <https://jgu.edu.in/disability-support-committee/>

Students who need support may register any time during the semester up until a month before the end semester exam begins. Those students who wish to continue receiving support from the previous semester, must re-register within the first month of a semester. Last-minute registrations and support might not be possible as sufficient time is required to make the arrangements for support.

The DSC maintains strict confidentiality about the identity of the student and the nature of their disability and the same is requested from faculty members and staff as well. The DSC takes a strong stance against in-class and out-of-class references made about a student's disability without their consent and disrespectful comments referring to a student's disability.

All general queries are to be addressed to [disabilitysupportcommittee@jgu.edu.in](mailto:disabilitysupportcommittee@jgu.edu.in)

*Disclaimer: This course outline including assessments, mode, nature and weightage of assessments, sessions, sequence of sessions and/or readings may be revised during the semester if such need arises.*