



17.4.2

Courses that address Sustainability and the SDGs

Manav Rachna University (MRU) demonstrates its strong commitment to advancing the United Nations Sustainable Development Goals (SDGs) through the integration of sustainability concepts within its academic curriculum. The university has systematically embedded SDG-related themes across various undergraduate and postgraduate programs, ensuring that students develop the knowledge, awareness, and competencies necessary to contribute to sustainable development in their professional and social roles.

MRU offers a wide range of programs, including:

- B.Tech in Electronics
- B.Tech in Mechanical Engineering
- B.Tech in Computer Science and Engineering
- BBA (Entrepreneurship Family Business, Finance and Accounts, Business Analytics, Global Health Care Management, Operations)
- MBA Business Analytics
- Bachelor of Law (LLB)
- BA LLB(Hons.)
- BA B.Ed
- Applied Sciences(Chemistry, Physics, Maths)

All programs include courses aligned with one or more Sustainable Development Goals (SDGs) to:

- Encourage sustainability-oriented learning
- Foster responsible and ethical practices
- Promote real-world problem-solving connected to global challenges

- Inspire action towards achieving the SDGs across disciplines

Dedicated Courses Addressing Sustainability and SDGs

The university offers several dedicated courses that directly address sustainability, environmental awareness, and the SDGs. These courses span across departments and academic years, reflecting an interdisciplinary approach to sustainability education.

Integration Across Curriculum

- Sustainability and SDG topics are not confined to a single discipline but are integrated into both core and elective courses.
- Each department ensures that at least one or more courses explicitly link learning outcomes to specific SDGs.
- Topics such as renewable energy, environmental management, smart technologies, ethical computing, and sustainable innovation form part of the teaching-learning framework.

Some examples of the courses taught in various programs which are related to the SDGs

The university **offers dedicated courses that address Sustainability and the SDGs**. These courses form an integral part of the formal curriculum and are continuously updated to reflect emerging global sustainability priorities. Through such academic initiatives, the university aligns education with the vision of the **United Nations 2030 Agenda for Sustainable Development**, fostering responsible global citizens committed to creating a sustainable future.

Department of Electronics and Communication Semester 3

Program	Course	Integrated SDG	Topics
B.Tech (ECE)	Introduction to Research	SDG9, SDG11	What is research and its impact; research trends; insights from experts; research do's and don'ts

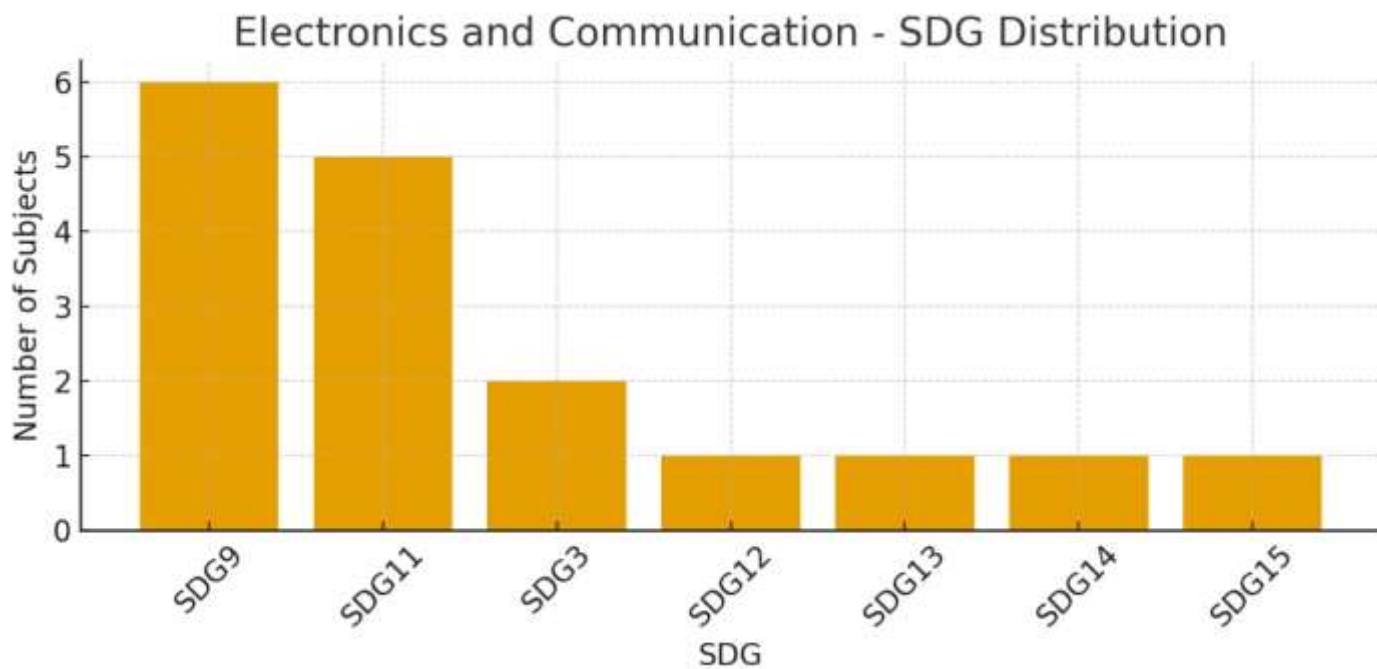
B.Tech (ECE)	Electronic Design Workshop	SDG9, SDG3, SDG11	Projects in healthcare and clean environment
B.Tech (ECE)	Electronic Waste Management	SDG12, SDG13, SDG14, SDG15	Impact of e-waste on air/land/water; reduction methods; health hazards

Semester 4

Program	Course	Integrated SDG	Topics
B.Tech (ECE)	Innovation and Research-I	SDG9, SDG11	Collect and organize literature; present data; design experiments

Semester 5

Program	Course	Integrated SDG	Topics
B.Tech (ECE)	IOT Networks and Protocols	SDG3, SDG9	Deployment, architectures, real-world design and hardware constraints
B.Tech (ECE)	Digital Signal Processing	SDG9, SDG11	Digital filter design; speech and image processing
B.Tech (ECE)	Innovation and Research-II	SDG9, SDG11	Conduct experiments; build prototypes; analyze and interpret data



Department of Mechanical Engineering

Semester 1

Program	Course	Integrated SDG	Topics
B.Tech (ME)	Basics of Electronics & Electrical Engineering	SDG7, SDG11	Digital electronics; energy-efficient circuits
B.Tech (ME)	Constitution of India	SDG11, SDG16	Indian Constitution and human rights

Semester 2

Program	Course	Integrated SDG	Topics
B.Tech (ME)	Environmental Science	SDG13, SDG11	Renewable/non-renewable resources; biodiversity and conservation; pollution

Semester 3

Program	Course	Integrated SDG	Topics
B.Tech (ME)	Introduction to Research	SDG9, SDG11	Research impact; current trends; expert insights

Semester 4

Program	Course	Integrated SDG	Topics
B.Tech (ME)	Research Innovation-I	SDG9, SDG11	Literature review; experiment design; data presentation

Semester 5

Program	Course	Integrated SDG	Topics
B.Tech (ME)	3D Printing	SDG9	Additive manufacturing; innovation in manufacturing
B.Tech (ME)	Environmental Ethics & Sustainable Development	SDG13, SDG15	Sustainability strategies and reporting; contemporary issues
B.Tech (ME)	Green Computing	SDG13, SDG15	E-waste legislation; end-of-life management
B.Tech (ME)	E-Waste Management	SDG13, SDG15	Minimizing power usage; green data centers

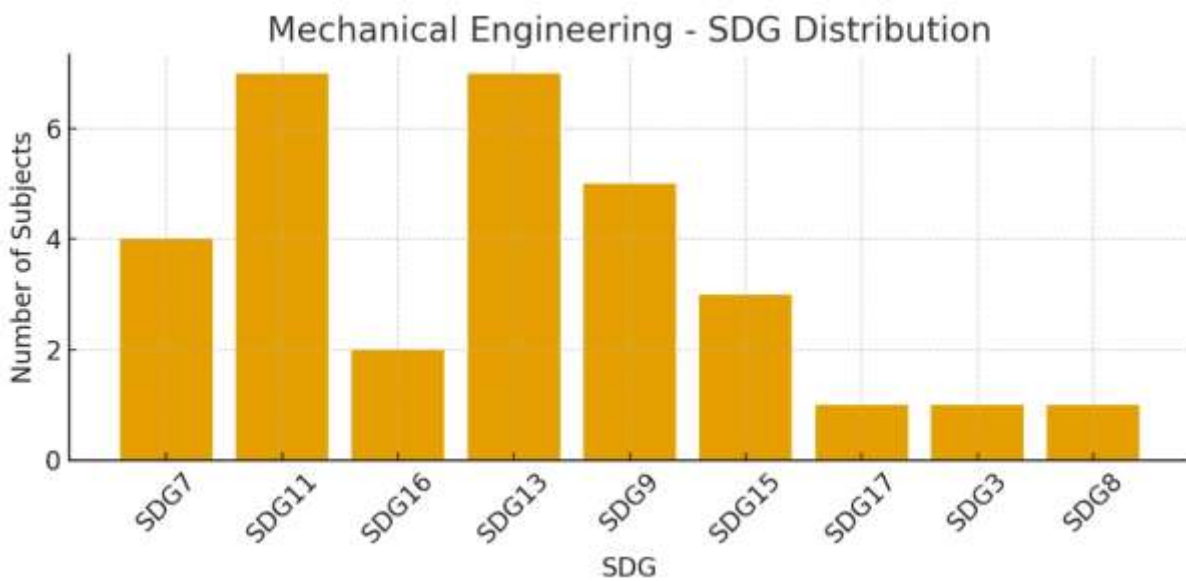
B.Tech (ME)	Essence of Indian Traditional Knowledge	SDG11, SDG16	Protecting and promoting indigenous cultures
B.Tech (ME)	Research Innovation-II	SDG9, SDG11	Experimentation; data analysis; result comparison

Semester 7

Program	Course	Integrated SDG	Topics
B.Tech (ME)	Renewable Energy Sources	SDG7, SDG13	Solar, wind, biomass, geothermal, wave energy; fuel cells
B.Tech (ME)	Heating, Ventilation and Air Conditioning	SDG7, SDG13	Heat load calculation; ventilation; human comfort
B.Tech (ME)	Entrepreneurship	SDG9, SDG17	Business opportunities and entrepreneurship skills
B.Tech (ME)	Energy Conservation & Management	SDG7, SDG13	Energy audits; conservation techniques

Semester 8

Program	Course	Integrated SDG	Topics
B.Tech (ME)	Project	SDG3, SDG8	Projects on solar power, composites, electric vehicles



B.TECH Computer Science & Engineering

Course mapping with (SDGs)

Semester 1

Program	Course	Integrated SDG	Topics
B.Tech (CSE)	Environmental Studies	SDG13, SDG11	Renewable/non-renewable resources; ecosystems; biodiversity
B.Tech (CSE)	User Interface-I (HTML5,CSS,JS,jQuery)	SDG9, SDG11	Website design and development
B.Tech (CSE)	Overview of Data Science & Machine Learning	SDG9, SDG11	ML overview; AI; intelligent systems
B.Tech (CSE)	Digital Product Engineering and Design Thinking	SDG9, SDG11	Design thinking; product development
B.Tech (CSE)	Introduction to Information Security	SDG9, SDG11	Smart city and sustainable development topics

Semester 2

Program	Course	Integrated SDG	Topics
B.Tech (CSE)	Cloud Computing	SDG12, SDG11	Virtualization; load scheduling; resource management
B.Tech (CSE)	Basics of Electronics & Electrical Engineering	SDG7, SDG11	Energy-efficient circuits
B.Tech (CSE)	Universal Human Values	SDG16, SDG3	Peace; sustainability; values
B.Tech (CSE)	Agile Software Development	SDG9, SDG11	Energy-efficient software engineering
B.Tech (CSE)	Python Programming	SDG9, SDG12	Lightweight, energy-efficient programming
B.Tech (CSE)	Introduction to Standards, Frameworks and Key Technology Concepts	SDG9, SDG11	Smart City; sustainable development

Semester 3

Program	Course	Integrated SDG	Topics
B.Tech (CSE)	Introduction to Research	SDG3, SDG6	Carbon footprint; healthcare innovation; IoT for social well-being

B.Tech (CSE)	Analysis & Design of Algorithms	SDG9, SDG12	Energy-efficient algorithm design
B.Tech (CSE)	User Interface-II (MongoDB, TypeScript, Angular)	SDG9, SDG11	Web designing and development
B.Tech (CSE)	Supervised Learning	SDG9, SDG11	ML algorithms for sustainable computing
B.Tech (CSE)	Data Structures & Algorithms	SDG9, SDG11	Algorithm design supporting innovation
B.Tech (CSE)	Software Craftsmanship	SDG11, SDG12	Designing software for sustainable development
B.Tech (CSE)	Secure Coding in C/C++	SDG11, SDG12	Systems security and safe coding

Semester 4

Program	Course	Integrated SDG	Topics
B.Tech (CSE)	Essence of Indian Traditional Knowledge	SDG4, SDG16	Protecting indigenous cultures and identities
B.Tech (CSE)	Operating Systems	SDG9, SDG12	Energy-efficient OS concepts
B.Tech (CSE)	Programming for Problem Solving using Python	SDG9, SDG11	Efficient programming practices
B.Tech (CSE)	Computer Architecture & Organization	SDG9, SDG12	Hardware and networking basics
B.Tech (CSE)	Unsupervised Learning & Neural Networks	SDG9, SDG11	Efficient ML training techniques
B.Tech (CSE)	Indian Constitution	SDG11, SDG16	Constitutional studies and rights
B.Tech (CSE)	Computer Networks	SDG9, SDG12	Energy-efficient network design
B.Tech (CSE)	Modern Web and Mobile Frameworks	SDG9, SDG12	Energy-efficient mobile frameworks
B.Tech (CSE)	Digital Forensics	SDG9, SDG12	Electronic evidence and investigations

Semester 5

Program	Course	Integrated SDG	Topics
B.Tech (CSE)	Environmental Ethics & Sustainable Development / Green Computing / E-Waste Management	SDG13, SDG15	Sustainability strategies; e-waste legislation; green data centers
B.Tech (CSE)	Cyber Law / IPR	SDG16, SDG10	Privacy, cybercrimes, IPRs, patents

B.Tech (CSE)	Research & Innovation-II	SDG3, SDG4	Carbon footprint studies; IoT for social well-being
B.Tech (CSE)	Digital Electronics & Microcontroller	SDG9, SDG11	Microprocessor and microcontroller basics
B.Tech (CSE)	Analysis & Design of Algorithms	SDG9, SDG11	Energy-efficient software design
B.Tech (CSE)	Advanced Neural Network	SDG9, SDG11	Role of ML in education and healthcare

Semester 6

Program	Course	Integrated SDG	Topics
B.Tech (CSE)	Machine Learning	SDG3, SDG9	ML in education, healthcare, enterprise
B.Tech (CSE)	Computer Graphics & Multimedia	SDG9, SDG12	Multimedia and interactive content
B.Tech (CSE)	Theory of Automata & Compiler Design	SDG9, SDG11	Designing effective machines
B.Tech (CSE)	Advanced Android Development	SDG9, SDG12	Energy-efficient mobile frameworks
B.Tech (CSE)	Network Security & Cryptography	SDG9, SDG12	Network security design
B.Tech (CSE)	Software Engineering	SDG9, SDG11	Sustainable software development

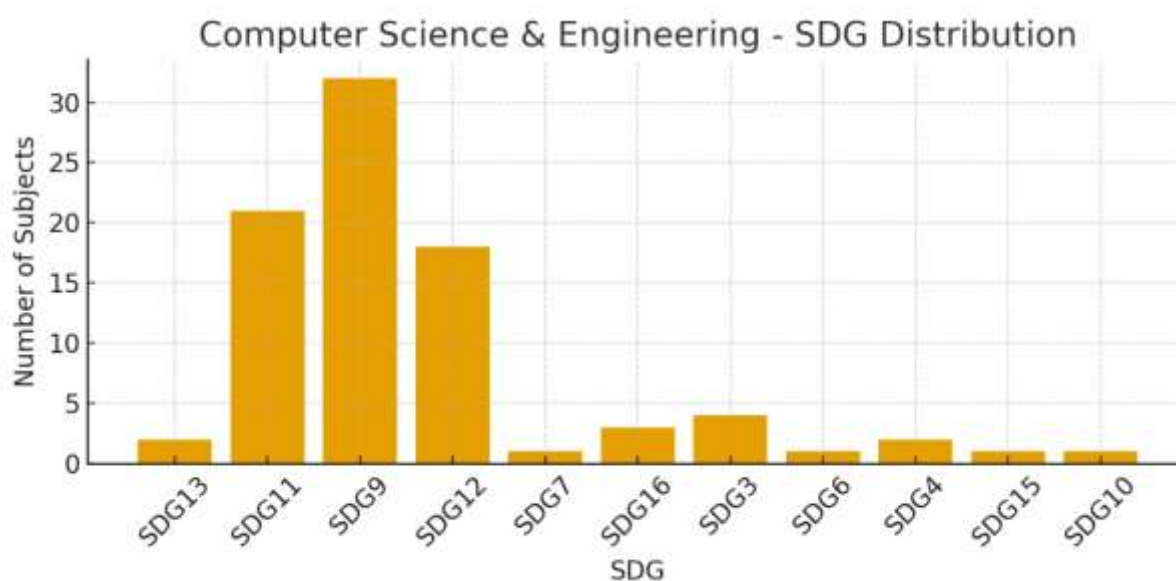
Semester 7

Program	Course	Integrated SDG	Topics
B.Tech (CSE)	Introduction to Finance / Basics of Economics / Essentials of Peace & Sustainability	SDG16, SDG11	Peace, sustainability and SDG drivers
B.Tech (CSE)	Big Data	SDG9, SDG12	Large-scale data analysis
B.Tech (CSE)	Computer Vision & Data Visualization	SDG9, SDG12	Data visualization and visual recognition
B.Tech (CSE)	Wireless Sensor Network / Optimization / Information Retrieval	SDG9, SDG11	Sensor networks and optimization techniques

Semester 8

Program	Course	Integrated SDG	Topics
B.Tech (CSE)	Convolutional Neural Networks for Visual Recognition	SDG3, SDG4	CNN architectures; detection and segmentation

B.Tech (CSE)	Business Intelligence & Analytics with R	SDG11, SDG8	Analysis and forecasting for enterprises
B.Tech (CSE)	Software Requirement Engineering	SDG9, SDG12	Requirements gathering and documentation
B.Tech (CSE)	Project	SDG9, SDG12	Team projects focusing on sustainable tech



Course mapping with (SDGs)

Semester 1

Program	Course	Integrated SDG	Topics
B.Sc. B.Ed.	Diversity of Microbes and Thallophytes	SDG14, SDG15	Distribution, structure, reproduction; lichens
B.Ed. (Special Education)	Human Growth & Development	SDG4, SDG3	Learning theories and psychological well-being
B.Ed. (Special Education)	Creating an Inclusive Classroom	SDG4, SDG16	Inclusive education strategies
B.Ed.	Child Development and Teaching Learning Process	SDG3, SDG5	Child abuse and gender discrimination
B.A. B.Ed.	Microeconomics: Theory and Applications I	SDG8, SDG12	Economies of scale; producer/consumer equilibrium

Semester 2

Program	Course	Integrated SDG	Topics
B.A. B.Ed.	Microeconomics: Theory and Application II	SDG8, SDG9	Market structures
B.Ed. (Special Education)	Creating an Inclusive Classroom	SDG4, SDG16	Inclusive education
B.Ed.	Learning and Teaching	SDG4	Theories of learning and implications
B.Sc. B.Ed.	Zoology: Animal Diversity-II	SDG6, SDG15	Insects as vectors

Semester 3

Program	Course	Integrated SDG	Topics
B.Ed. (Special Education)	Disability Specialization	SDG4	Lesson planning and execution for special education
B.Ed.	Gender, School and Society	SDG5, SDG10	Gender equality and role of schools
B.Sc. B.Ed.	Gymnosperms and Reproduction in Angiosperms	SDG13, SDG15	Classification and economic importance

Semester 4

Program	Course	Integrated SDG	Topics
B.Ed.	Education in Contemporary India	SDG4	Commissions, NPEs, RTE Act 2009, NEP 2020; role of educational agencies
B.Ed. (Special Education)	Cross-Disability and Inclusion	SDG4	IEP planning and implementation

Semester 5

Program	Course	Integrated SDG	Topics
BA B.Ed.	Literary Criticism	SDG4	Evolution of literary criticism
BA B.Ed.	Indian Economy	SDG9, SDG12	Industrial sector in India
BSc B.Ed.	Ecology and Animal Behaviour	SDG3, SDG15	Hormonal control

Semester 6

Program	Course	Integrated SDG	Topics
BSc B.Ed.	Plant Physiology and Metabolism	SDG13, SDG15	Water relations in plants
BA B.Ed.	Money and Banking	SDG8, SDG10	Commercial banking and monetary policy
BSc B.Ed.	Developmental Biology and Applied Zoology	SDG15, SDG11	Sericulture, apiculture, aquaculture practices

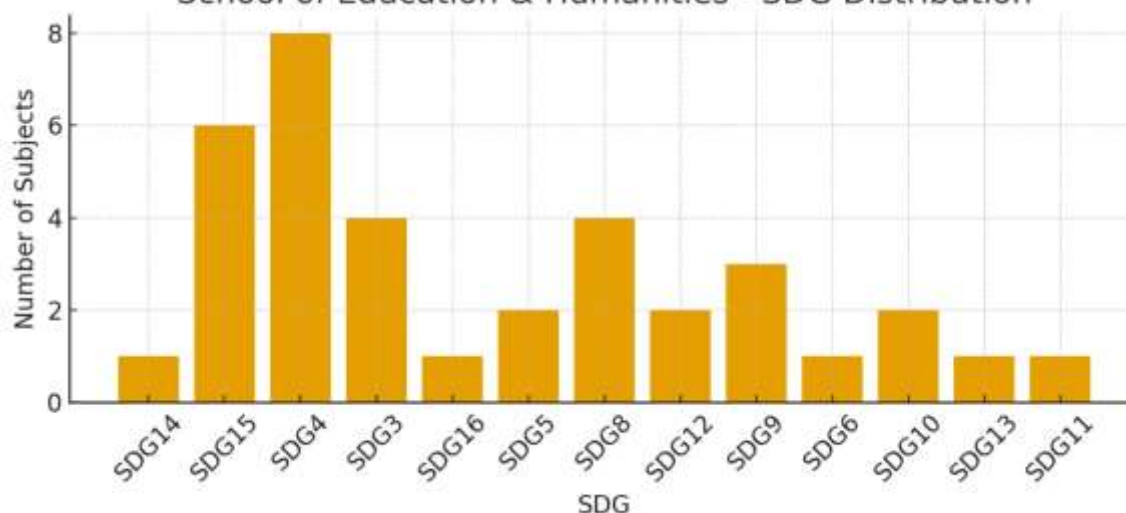
Semester 7

Program	Course	Integrated SDG	Topics
BSc B.Ed.	Numerical Analysis	SDG4, SDG9	Interpolation; solving nonlinear equations
BA B.Ed.	Internship	SDG4	Teaching competency; action research; reflective journals

Semester 8

Program	Course	Integrated SDG	Topics
BA B.Ed.	School Leadership and Management	SDG4	Group dynamics, conflict and stress management
BSc B.Ed.	Biochemistry, Plant Tissue Culture and Biotechnology	SDG15, SDG3	Biochemistry and biotech techniques
BA B.Ed.	Statistics	SDG8	Correlation and regression

School of Education & Humanities - SDG Distribution



Semester1

Program	Course	Integrated SDG	Topics
B.Sc(Maths) Semi	Programming For Problem Solving Using C Lab	SDG4	Problems Solving, Using C Programming
	Maths Lab - I	SDG4	Mathematical Problem Using Softwares Like Octave, R Etc

	Communicative English	SDG4		Group Discussions
M.Sc(Maths) Sem I	Excel Workshop Mathematics Lab-I Python Programming	SDG4		Solve Mathematical Problem Using Softwares Like Octave, R ,Python Etc

Semester2

Program	Course	Integrated SDG		Topics
B.Sc(Maths) Semii	Math Lab – Ii	SDG4		Simplify Arithmetic Calculations Using Octave & Microsoft Excel
	Environmental Science	SDG4	SDG6, SDG 12	Environment Education, Environmental Pollution, Integrated Water Resource Management
M.Sc(Maths) Sem Ii	Mathematics Lab – Ii Scientific Research - I	SDG4		Solve Mathematical Problem Using Softwares Like Octave, R Etc And Educational Research

Semester3

Program	Course	Integrated SDG		Topics
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B.Sc(Maths) Semiii	Math Lab – Iii	SDG4		Elaborate Scientific Writing Using Latex
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	Applied Philosophy	SDG1 0	SDG1 6	Human Rights And Laws
	Applied Psychology	SDG1 6		Introduction To Psychology, Psychological Abuse
	Applied Sociology	SDG 8	SDG1 0	Social Change & Mobility
	Introduction To Finance	SDG 1, SDG 4,	SDG 8, SDG 12	Economic Resource & Access, Life Long Learning, Economic Activity, Economic Development, Economic Growth, Ecomic Impact, Gdp, Production And Resource Use
M.Sc(Maths) Sem Iii	Pedagogical Skills Scientific Research -II	SDG4		Pedagogical Content Knowledge, Lifelong Learning, Education Research
Semester4				
Program	Course	Integrated SDG		Topics
B.Sc(Maths) Semiv	Spanish Ii	SDG4		-Ser Vs. Estar - Verbos Irregulares - Tiempo - Verbos Reflexivos
	German Ii	SDG4		Possessivepronomen - Unregelmäßige Verben - Adjektiven - Das Wetter - Modal Verben

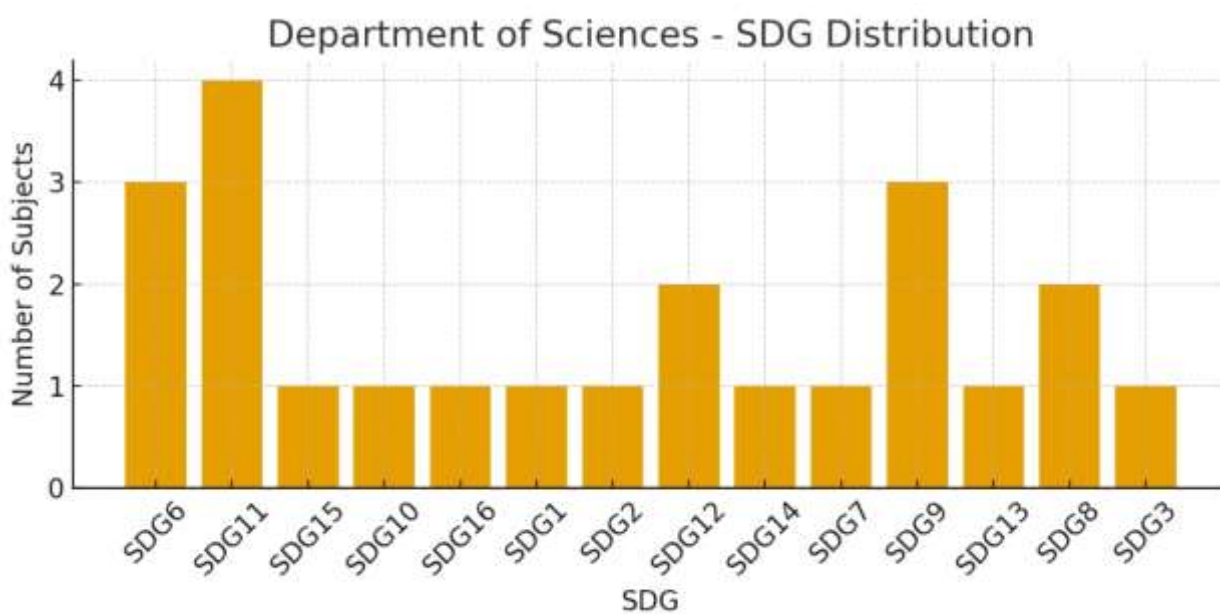
	Data Structures	SDG4		Algorithm Analysis, Complexity Of Algorithm
	Environment & Sustainable Development	SDG2	SDG3, SDG8	Nutrition, Indigenous Knowledge, Climate Change, Sustainable Tourism, Gender Issues
	E-Waste	SDG1 2	SDG 14 , SDG15	Separation And Recycling Of E-Waste, Understanding Rohs And Reach
	Mini Project-Ii	SDG4		Literature Review And Report Writing

	French Ii	SDG4		- Les Aticles Patitifs - Ir Verbs - Les Exceptions <Er Verbs> - Les Adjectifs - Les Verbs Pronominaux
M.Sc(Maths) Sem Iv	Project	SDG4	SDG8	Learning Opportunities, Offset Project

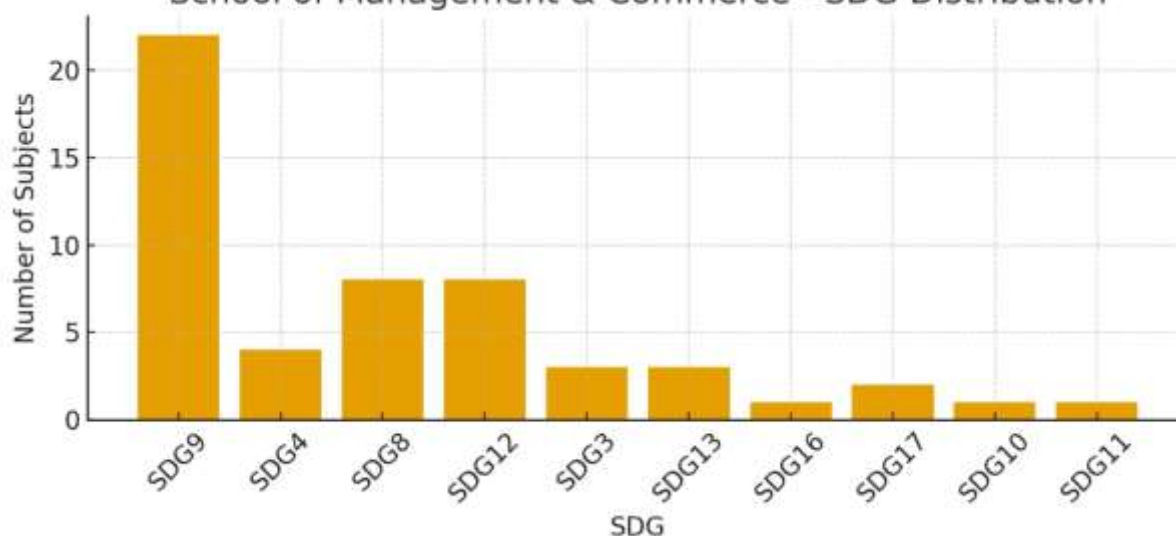
Semester5

Program	Course	Integrated Sdg		Topics
B.Sc(Maths) Sem V	Math Lab - Iv	SDG4		Interpolation
	Introduction To Database Management Systems	SDG4		Sql Implementation Query Writing Normalization Functional Dependency

	Minor Project	SDG4		Literature Review And Report Writing
	Environment & Sustainable Development	SDG2	SDG3, SDG8, SDG5	Nutrition, Indigenous Knowledge, Climate Change, Sustainable Tourism, Gender Issues
Semester 6				
Program	Course	Integrated SDG		Topics
B.Sc(Maths) Sem Vi	Fundamentals Of Machine Learning Lab	SDG4		Machine Learning, Supervise Learning, Unsupervised Learning
	Entrepreneurship Theory & Practice	SDG4	SDG8	Entrepreneurship Skills, Climate Change, Sustainable Tourism



School of Management & Commerce - SDG Distribution



Semester 1

Program	Course	Integrated SDG	Topics
B.A. LL.B. (H)	Sociology - I	SDG10, SDG16	Backward classes, affirmative action, constitutional provisions

Semester 2

Program	Course	Integrated SDG	Topics
B.A. LL.B. (H)	Legal Methods	SDG16	Indian legal system and rule of law

Semester 3

Program	Course	Integrated SDG	Topics
B.A. LL.B. (H)	Constitutional Law - I	SDG4, SDG10, SDG16	Equality before law; protection of minorities; human trafficking; child labor; right to education

Semester 4

Program	Course	Integrated SDG	Topics
B.A. LL.B. (H)	Family Law - II	SDG5	Dower, maintenance, divorce
B.A. LL.B. (H)	Environmental Science	SDG11, SDG12, SDG13, SDG14, SDG15	Forest resources; water resources; biodiversity; conservation

Semester 5

Program	Course	Integrated SDG	Topics
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B.A. LL.B. (H)	Criminal Procedure Code	SDG16	Rights of accused; FIR; bail; criminal justice administration
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Semester 6

Program	Course	Integrated SDG	Topics
B.A. LL.B. (H)	Labour Laws	SDG1, SDG8, SDG10, SDG11, SDG16	Labour courts; social security; workmen's compensation; safety of workers

Semester 7

Program	Course	Integrated SDG	Topics
B.A. LL.B. (H)	Competition Law	SDG17, SDG8	Anti-competitive agreements; abuse of dominance
B.A. LL.B. (H)	Juvenile Justice	SDG4, SDG5	Rights of child; adoption; juvenile justice administration

Semester 8

Program	Course	Integrated SDG	Topics
B.A. LL.B. (H)	Intellectual Property Rights Law - II	SDG8, SDG9	TRIPS, Berne Convention; traditional knowledge and folklore
B.A. LL.B. (H)	Law on Infrastructure Development	SDG9, SDG11	Infrastructure development and project financing

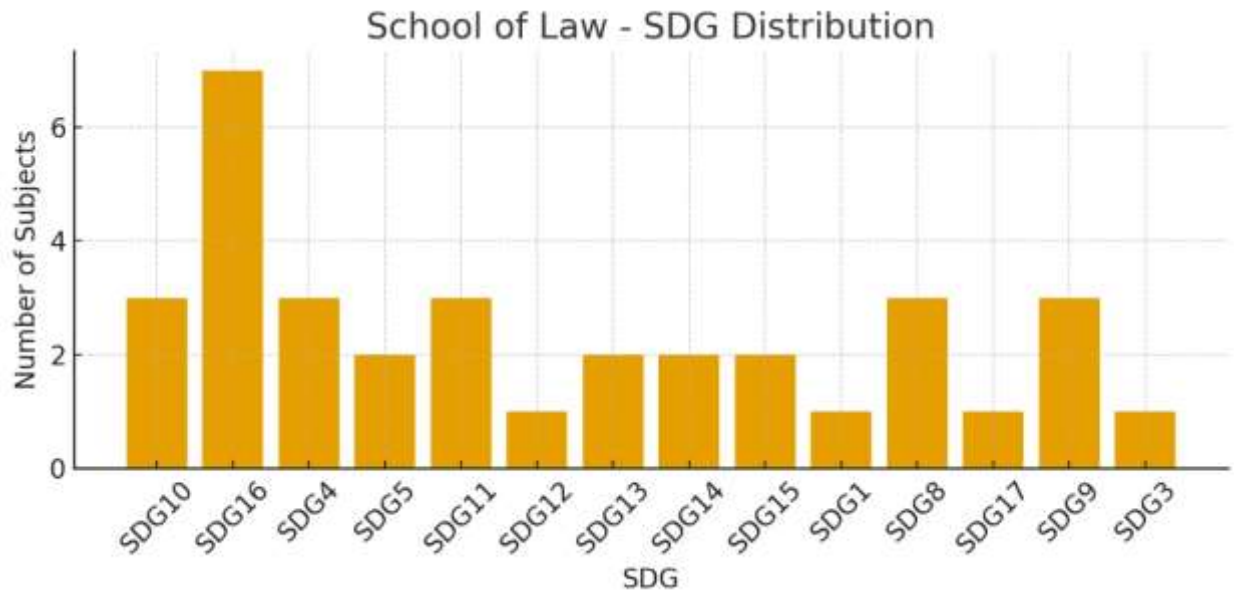
Semester 9

Program	Course	Integrated SDG	Topics
B.A. LL.B. (H)	Public International Law and Human Rights	SDG16	International Court of Justice; human rights institutions
B.A. LL.B. (H)	Environmental Law	SDG3, SDG13, SDG14, SDG15	Environmental protection acts; pollution control laws

Semester 10

Program	Course	Integrated SDG	Topics
B.A. LL.B. (H)	Clinic IV (Professional Ethics & Professional Accounting System)	SDG4	Code of ethics; professional misconduct; duty towards society
B.A. LL.B. (H)	Cyber Crimes and Law	SDG16, SDG9	Legal framework for cyber crimes;

			intellectual property in cyber world
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Overall SDG Distribution Across All Departments

