

Detailed Syllabus
Lecture-wise Breakup

Course Code	19M13HS211	Semester: Odd	Semester: M.Tech III and M.Tech Integrated X Session: 2021 -2022 Month from: August-December 2021	
Course Name	Constitution of India			
Credits	2	Contact Hours	2-0-0	

Faculty (Names)	Coordinator(s)	Dr. Chandrima Chaudhuri
	Teacher(s) (Alphabetically)	Dr. Chandrima Chaudhuri Ms. Puneet Pannu

COURSE OUTCOMES		COGNITIVE LEVELS
C202.1	Demonstrate an understanding of the historical inheritances and institutional legacies of Indian Constitution	Understand (C2)
C202.2	Assess the nature of the Indian constitution and its applicability in the study of politics in India.	Evaluate (C5)
C202.3	Assess the devolution of powers and authority of governance of the Union government and the local government	Evaluate (C5)
C202.4	Demonstrate an understanding of the powers and functions of the Indian executive, legislature and judiciary	Understand (C2)

Module No.	Title of the Module	Topics in the Module	No. of Lectures for the module
1.	History of Making of the Indian Constitution	<ul style="list-style-type: none"> • History • Drafting Committee-Composition & Working 	2

2.	Philosophy of the India Constitution	<ul style="list-style-type: none"> • Preamble • Salient Features • Federalism 	2
3.	Fundamental Rights and Directive Principles	<ul style="list-style-type: none"> • Right to Equality • Right to Freedom • Right against Exploitation • Right to Freedom of Religion • Cultural and Educational Rights • Right to Constitutional Remedies • Directive Principles of State Policy • Conflict between DPSP and FR • Fundamental Duties 	5
4.	Organs of Governance	<ul style="list-style-type: none"> • Parliament-Composition, Qualifications & and Disqualification, Powers and Functions • Executive- President, Governor Council of Ministers • Judiciary-Appointment and Transfer of Judges, Qualifications, Power and Functions 	8
5.	Local Administration	<ul style="list-style-type: none"> • District's Administration head: Role and Importance • Municipalities: Introduction, Mayor and role of Elected Representative, CEO of Municipal Corporation • Panchayati raj: Introduction, PRI: Zila Panchayat. • Elected officials and their roles, CEO Zila Panchayat: Position and role • Block level: Organizational Hierarchy (Different departments) • Village level: Role of Elected and Appointed officials • Importance of Grass root democracy 	8
6.	Election Commission	<ul style="list-style-type: none"> • Election Commission: Role and Functioning 	3
Total number of Lectures			28

Evaluation Criteria	
Components	Maximum Marks
Mid Term:	30
End Semester Examination	40
TA	30 (Attendance, Quiz, Project)
Total	100

Recommended Reading material: Author(s), Title, Edition, Publisher, Year of Publication etc. (Text books, Reference Books, Journals, Reports, Websites etc. in the IEEE format)	
1.	Austin, G. (1996). <i>The Indian Constitution: Corner Stone of a Nation</i> . Oxford: Oxford University Press
2.	Bakshi, P.M.(2015). <i>The Constitution of India</i> . Delhi: Universal Law Pub. Co. Pvt. Ltd
3.	Bhuyan, D. (2016). <i>Constitutional Government and Democracy in India</i> . Cuttack:Kitab Mahal..
4.	Busi, S.N. (2016). <i>Dr. B. R. Ambedkar framing of Indian Constitution</i> . Hyderabad:Ava Publishers
5.	Basu, D.D. (2018). <i>Introduction to the Constitution of India</i> . Nagpur: Lexis Nexis
6.	Jayal, N.G. & Mehta, P.B. (eds.)(2010). <i>The Oxford Companion to Politics in India</i> . New Delhi: Oxford University Press.
7.	Constitution series by Rajya Sabha Television and discussion on Indian Constitution by Rajya Sabha Television

Detailed Syllabus
Course Outcomes

Course Code	17I17EC511/17M17EC219/ 17M27EC215/17M17EC222 /17I17EC511	Semester ODD	Semester 3rd& 4th for M.Tech / 11th for Dual Degree
Course Name	Dissertation		
Credits	M.Tech-4 & 16 DD - 22	Contact Hours	8 & 32
Session	2021 - 2022		
Month from	July to Dec		

Faculty (Names)	Coordinator(s)	Dr. Rachna Singh, Dr Kirmender Singh
	Teacher(s) (Alphabetically)	All faculty of ECE Deptt.

COURSE OUTCOMES		COGNITIVE LEVELS
C213.1	Summarize the contemporary scholarly literature, activities, and explored tools/ techniques/software/hardware for hands-on in the respective project area in various domain of Electronics Engineering.	Understanding Level (C2)
C213.2	Gain knowledge of the State-of-Art in the chosen field of study. Analyze various feasible methods of solving a problem to slot a suitable solution methodology	Analyzing Level (C4)
C213.3	Use latest techniques and software tools for achieving the defined objectives. Evaluate /Validate sound conclusions based on evidence and analysis	Evaluating Level (C5)
C213.4	Demonstrate the oral and written communication skills. Describe the importance of possible future developments in the selected domain	Creating Level (C6)

Evaluation Criteria

(Dissertation at the end of third semester for M.Tech only)

Components	Maximum Marks
End Term Viva	60
Day to Day	40
Total	100

(Dissertation at the end of final semester for M.Tech/DD)

Components	Maximum Marks
End Term Viva	50
Special Contribution	10
Day to Day	40
Total	100

Detailed Syllabus
Course Outcomes

Course Code	17M17EC218	Semester Odd (specify Odd/Even)	Semester 3rd Session 2021-2022 Month from July to December
Course Name	Seminar & Term Paper		
Credits	4	Contact Hours	

Faculty (Names)	Coordinator(s)	Saurabh Chaturvedi
	Teacher(s) (Alphabetically)	Saurabh Chaturvedi

S. N.	COURSE OUTCOMES: At the completion of the course, students will be able to	COGNITIVE LEVELS
C212.1	Understand relevant theories, methods and research design relating to the seminar topic selected by a student.	Understanding Level (C2)
C212.2	Analyze the work of other authors/researchers and contribute to the field of knowledge with the cooperation of the supervisor.	Analyzing Level (C4)
C212.3	Evaluate the previously published research works, findings and conclusions.	Evaluating Level (C5)
C212.4	Develop and refine the master's dissertation topic and proposal. Develop the effective technical writing, communication and presentation skills.	Creating Level (C6)

Evaluation Criteria	
Components	Maximum Marks
Mid semester viva	20
End semester viva	20
Day-to-day evaluation	40
Term paper/Report	20
Total	100

Detailed Syllabus

Lecture-wise Breakup

Subject Code	17M11EC129	Semester	ODD	Semester 3rd Session 2021-22 Month from July 21 to Dec 21
Subject Name	Project Based Learning - II			
Credits	2	Contact Hours	2	

Faculty (Names)	Coordinator(s)	Dr. Vivek Dwivedi
	Teacher(s) (Alphabetically)	NA

COURSE OUTCOMES		COGNITIVE LEVELS
C171.1	Summarize the contemporary scholarly literature, activities, and explored tools/ techniques/software/hardware for hands-on in the respective project area in various domain of Embedded Systems, Signal Processing, VLSI, Communication, Artificial Intelligence and Machine Learning/Deep Learning etc.	Understanding Level (C2)
C171.2	Analyze/ Design the skill for obtaining the optimum solution to the formulated problem with in stipulated time and maintain technical correctness with effective presentation.	Analyzing Level (C4)
C171.3	Use latest techniques and software tools for achieving the defined objectives.	Evaluating Level (C5)
C171.4	Evaluate /Validate sound conclusions based on analysis and effectively document it in correct language and proper format.	Evaluating Level (C5)

Project Based Learning Component: Every student will be assigned a project supervisor. The project supervisor will assign 4 different tasks to the student. These tasks will be evaluated by a panel of examiners in the mid and end semester. The students will explore various tools/techniques/software/hardware for hands-on in the respective project area in various domain of Embedded Systems, Signal Processing, VLSI, Communication, Artificial Intelligence and Machine Learning/Deep Learning etc.

Evaluation Criteria

Components	Maximum Marks
Mid Sem Evaluation	40
Final Evaluation	40
Report	20
Total	100

Advanced Operations Research (18M12MA111)

Course Description

Course Code	18M12MA111	Semester Odd	Semester III Session 2021-22 Month from Aug - Dec 2021
Course Name	Advanced Operations Research		
Credits	3	Contact Hours	3-0-0
Faculty (Names)	Coordinator(s)	Prof. A. K. Aggarwal	
	Teacher(s) (Alphabetically)	Prof. A.K. Aggarwal	
COURSE OUTCOMES			COGNITIVE LEVELS
After pursuing the above mentioned course, the students will be able to:			
C203.1	construct and solve linear programming problems and analyze their optimal solution using parametric and sensitivity analysis		Analyzing Level (C4)
C203.2	identify and solve the inventory models with and without shortages.		Applying Level (C3)
C203.3	construct the network diagram and analyze the critical activities using PERT/CPM for project planning.		Analyzing Level (C4)
C203.4	identify pure and mixed strategy games and solve and analyze them using graphical and linear programming techniques.		Analyzing Level (C4)
C203.5	solve multi-objective programming problems by graphical and simplex method.		Analyzing Level (C4)
C203.6	demonstrate Kuhn-Tucker conditions and apply them to solve non-linear programming problems, quadratic and separable programming problems.		Analyzing Level (C4)
Module No.	Title of the Module	Topics in the Module	No. of Lectures for the module
1.	Review of Linear Programming Problems and Duality	Convex sets, graphical and simplex method, artificial variable techniques, revised simplex method, duality theory, dual simplex method, revised dual simplex method.	5
2.	Parametric and Sensitivity Analysis	Sensitivity analysis, parametric linear programming, parametric sensitivity analysis.	5
3.	Inventory	Introduction, inventory models, economic order quantity (EOQ), deterministic and probabilistic inventory models, inventory control.	7
4.	Network Analysis	Network diagram, project planning using critical path method (CPM) and program evaluation review technique (PERT), crashing of network, simulation techniques.	7
5.	Games and Strategies	Pure and mixed strategies, minimax (maximin) criterion of optimality, solution of various models in game theory by graphical and linear	6

		programming technique, rules of dominance.	
6.	Multi-objective Programming Problems	Solution of multi-objective programming problems by graphical and simplex method.	4
7.	Nonlinear Programming Problems	Convex functions and their properties, Kuhn Tucker theory, convex quadratic programming, Wolfe's and Beale's algorithm, Separable convex programming.	8
		Total number of Lectures	42

Evaluation Criteria

Components	Maximum Marks
T1	20
T2	20
End Semester Examination	35
TA	25 (Quiz, Assignments)
Total	100

Project based learning: Students will be divided in a group of 4-5 to conduct literature survey, case study on inventory models, project planning, multi-objective linear programming and nonlinear programming problems in real life. The students will solve the problems with the help of MATLAB and submit a detailed report and present their important outcomes also.

Recommended Reading material: Author(s), Title, Edition, Publisher, Year of Publication etc. (Text books, Reference Books, Journals, Reports, Websites etc. in the IEEE format)

1. **Taha,H. A.**, Operations Research - An Introduction, Tenth Edition, Pearson Education, 2017.
2. **Rao,S. S.**, Engineering Optimization, Theory and Practice, Fourth Edition, John Wiley, 2009.
3. **Deb, K.**, Optimization for Engineering Design, Algorithms and Principles, PHI, 2010.