

## Detailed Syllabus

<b>Course Code</b>	17M17CS121	<b>Semester Odd</b> (specify Odd/Even)	<b>Semester III</b> <b>Session</b> 2020 -21 <b>Month</b> from Aug to Dec
<b>Course Name</b>	Project Based Learning-II (Software Development Automation)		
<b>Credits</b>	4	<b>Contact Hours</b>	8

<b>Faculty (Names)</b>	<b>Coordinator(s)</b>	Dr. Tribhuwan Kumar Tewari
	<b>Teacher(s) (Alphabetically)</b>	Dr. Tribhuwan Kumar Tewari, Ms.Purtee Kohli

<b>COURSE OUTCOMES</b>		<b>COGNITIVE LEVELS</b>
<b>C210.1</b>	Develop a project on live problems by applying automated software development process.	Create Level (C6)
<b>C210.2</b>	Confront the issues related to development of project which includes team work, test driven design, data collections etc.	Analyze Level (C4)
<b>C210.3</b>	Develop oral communication skill and prepare technical report.	Apply Level (C3)
<b>C210.4</b>	Critically review the projects developed by peers.	Evaluate Level (C5)

<b>Evaluation Criteria</b>	
<b>Components</b>	<b>Maximum Marks</b>
6-Reviews (8 Marks each)	48
Report	10
Presentation	10
Viva	16
Peer Assessment	8
Self Assessment	8
<b>Total Marks</b>	<b>100</b>

**Detailed Syllabus**  
**Lecture-wise Breakup**

<b>Course Code</b>	17M17CS223	<b>Semester EVEN</b> <b>(specify Odd/Even)</b>	<b>Semester IV Session 2020 -2021</b> <b>Month from Jan to June</b>
<b>Course Name</b>	Dissertation (M Tech. CSE )(NBA Code: C216)		
<b>Credits</b>	16	<b>Contact Hours</b>	32

<b>Faculty (Names)</b>	<b>Coordinator(s)</b>	Dr. Shikha Jain
	<b>Teacher(s)</b> <b>(Alphabetically)</b>	Dr. Shikha Jain

<b>COURSE OUTCOMES</b>		<b>COGNITIVE LEVELS</b>
C216.1	Identify a research problem after thorough literature survey.	Understand (Level-2)
C216.2	Apply the acquired knowledge in the field of computer science while proposing a solution to the identified research problem.	Apply (Level-3)
C216.3	Implement the proposed solution to exhibit the programming skill.	Analyze (Level-4)
C216.4	Evaluate the solution to meet the given set of requirements.	Analyze (Level-4)
C216.5	Demonstrate and defend their research work to a panel of experts.	Evaluate (Level-5)
C216.6	Demonstrate the research output in terms of publications.	Create (Level-6)

<b>Evaluation Scheme</b>	
Day to day work to be awarded by Supervisor -	40 Marks
End Semester Evaluation by a panel of Examiners -	50 Marks
Significant/special contribution to be awarded by Panel of examiners -	10 Marks
<b>Total Marks –</b>	<b>100 Marks</b>

**Detailed Syllabus**  
**Lecture-wise Breakup**

<b>Course Code</b>	17M17CS224	<b>Semester Even</b> (specify Odd/Even)	<b>Semester IV Session 2020 -2021</b> <b>Month from</b> Jan to June
<b>Course Name</b>	Industrial Project (CSE) (NBA Code: C217)		
<b>Credits</b>	16	<b>Contact Hours</b>	32

<b>Faculty (Names)</b>	<b>Coordinator(s)</b>	Dr. Shikha Jain
	<b>Teacher(s)</b> (Alphabetically)	Dr. Shikha Jain

<b>COURSE OUTCOMES</b>		<b>COGNITIVE LEVELS</b>
C217.1	Identify an organization and relevant project as problem	Understand (Level-2)
C217.2	Review relevant literature related to identified project	Understand (Level-2)
C217.3	Apply acquired Computer Science concepts and tools to solve the business-related problem	Apply (Level-3)
C217.4	Analyze various solution alternatives to solve the given problem	Analyze (Level-4)
C217.5	Evaluate proposed solution with respect to alternatives to establish its efficacy	Evaluate (Level-5)
C217.6	Create oral and written account of the work done and its results and conclusions	Create (Level-6)

**Evaluation Scheme**

**To be awarded by Supervisor from Industry**

- (i) Problems statements and identification of work plan - 10 Marks  
(ii) Execution of work plan and progress made - 40 Marks

**Total (a) : 50 Marks**

**To be awarded by Supervisor from JIIT**

- (iii) Interaction with Internal Supervisor upto mid semester - 10 Marks  
(iv) Interaction with Internal Supervisor from mid to end semester - 10 Marks  
(v) Report, Presentation and Viva-Voce at the end of semester - 30 Marks  
by a panel of examiners consisting of Internal Supervisor,  
a nominee of HoD and a nominee of Dean A & R /RID as  
approved by VC

**Total (b): 50 Marks**

**Grand Total (a+b) : 100 Marks**

**Detailed Syllabus**  
**Lecture-wise Breakup**

Course Code	<b>19M13HS211</b>	Semester: Odd	Semester: M.Tech III and M.Tech Integrated X Session: 2020 -2021 Month from: July-December 2020
Course Name	<b>Constitution of India</b>		
Credits	2	Contact Hours	(2-0-0)

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

<b>COURSE OUTCOMES</b>		<b>COGNITIVE LEVELS</b>
<b>C202.1</b>	Demonstrate an understanding of the conflict between the Fundamental Rights and Directive Principles as given in the Indian Constitution	Understand (C2)
<b>C202.2</b>	Assess the nature of the Indian constitution and its applicability in the study of politics in India.	Evaluate (C5)
<b>C202.3</b>	Assess the devolution of powers and authority of governance of the Union government and the local government	Evaluate (C5)
<b>C202.4</b>	Demonstrate an understanding of the powers and functions of the Indian executive, legislature and judiciary	Understand (C2)

<b>Module No.</b>	<b>Title of the Module</b>	<b>Topics in the Module</b>	<b>No. of Lectures for the module</b>
1.	History of Making of the Indian Constitution	<ul style="list-style-type: none"> <li>• History</li> <li>• Drafting Committee-Composition &amp; Working</li> </ul>	3
2.	Philosophy of the India Constitution	<ul style="list-style-type: none"> <li>• Preamble</li> <li>• Salient Features</li> </ul>	1

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

### Evaluation Criteria

#### Components

#### Maximum Marks

Mid Term Examination: 30

End Semester Examination 40

TA 30 (Attendance, Quiz, Project)

<b>Total</b>	<b>100</b>
--------------	------------

**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 inIndia</i> . New Delhi: Oxford University Press. |

## Advanced Operations Research (18M12MA111)

### Course Description

<b>Course Code</b>	<b>18M12MA111</b>	<b>Semester Odd</b>	<b>Semester III Session 2020-21</b> <b>Month from Aug 2020 -Dec 2020</b>
<b>Course Name</b>	Advanced Operations Research		
<b>Credits</b>	3	<b>Contact Hours</b>	3-0-0
<b>Faculty (Names)</b>	<b>Coordinator(s)</b>	Prof. A.K. Aggarwal	
	<b>Teacher(s) (Alphabetically)</b>	Prof. A.K. Aggarwal	
<b>COURSE OUTCOMES</b>			<b>COGNITIVE LEVELS</b>
After pursuing the above mentioned course, the students will be able to:			
<b>C203.1</b>	construct and solve linear programming problems and analyze their optimal solution using parametric and sensitivity analysis	Analyzing Level (C4)	
<b>C203.2</b>	identify and solve the inventory models with and without shortages.	Applying Level (C3)	
<b>C203.3</b>	construct the network diagram and analyze the critical activities using PERT/CPM for project planning.	Analyzing Level (C4)	
<b>C203.4</b>	identify pure and mixed strategy games and solve and analyze them using graphical and linear programming techniques.	Analyzing Level (C4)	
<b>C203.5</b>	solve multi-objective programming problems by graphical and simplex method.	Analyzing Level (C4)	
<b>C203.6</b>	demonstrate Kuhn-Tucker conditions and apply them to solve non-linear programming problems, quadratic and separable programming problems.	Analyzing Level (C4)	
<b>Module No.</b>	<b>Title of the Module</b>	<b>Topics in the Module</b>	<b>No. of Lectures for the module</b>
1.	<b>Review of Linear Programming Problems and Duality</b>	Convex sets, graphical and simplex method, artificial variable techniques, revised simplex method, duality theory, dual simplex method, revised dual simplex method.	5
2.	<b>Parametric and Sensitivity Analysis</b>	Sensitivity analysis, parametric linear programming, parametric sensitivity analysis.	5
3.	<b>Inventory</b>	Introduction, inventory models, economic order quantity (EOQ), deterministic and probabilistic inventory models, inventory control.	7
4.	<b>Network Analysis</b>	Network diagram, project planning using critical path method (CPM) and program evaluation review technique (PERT), crashing of network, simulation techniques.	7
5.	<b>Games and Strategies</b>	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.	<b>Multi-objective Programming Problems</b>	Solution of multi-objective programming problems by graphical and simplex method.	4
7.	<b>Nonlinear Programming Problems</b>	Convex functions and their properties, Kuhn Tucker theory, convex quadratic programming, Wolfe's and Beale's algorithm, Separable convex programming.	8
		<b>Total number of Lectures</b>	<b>42</b>

#### Evaluation Criteria

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

**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.