Detailed Syllabus

Lecture-wise Breakup

Course Code	17M27CS121	**Semester:** Odd	**Semester:** III **Session:** 2020-2021 **Month from** Aug 2020 to Dec 2020
Course Name	Project Based Learning-II (Open Initiative Centric Systems Development)		
Credits	4	**Contact Hours**	8

Faculty (Names)	**Coordinator(s)**	Satish Chandra
	Teacher(s) (Alphabetically)	Satish Chandra

COURSE OUTCOMES		**COGNITIVE LEVELS**
C211.1	Understand the requirements from managers and end users.	Understanding Level (Level 2)
C211. 2	Design system model with feasibility study for identified problem.	Creating Level (Level 6)
C211.3	Apply the tools, technology and techniques for the development of different modules by different team members by using code templates	Applying Level (Level 3)
C211.4	Assess the product by testing the modules.	Evaluating Level (Level 5)
C211.5	Analyze the technical as well as socio-politico-economic issues involved for launching start up	Analyze Level (Level 4)

Module No.	**Title of the Module**	**Course Plan**	**CO**
1.	Problem Identification	a) Automation Problems (live problem relevant to the Indian society) b) Economic considerations c) Aim d) Scope e) Open Source Automation Building & Testing Tools	C211.1
2.	Problem Formulation	a) Design and Implementation Constraints b) Assumptions and Dependencies c) Functional Requirements d) Non-functional Requirements	C211.2
3.	Lab Class	Implementation	C211.3
4.	Lab Class	Testing	C211.5
5.	Analysis	Analyze the technical as well as socio-politico-economic issues involved for launching start up	C211.4

Evaluation Criteria	
Components	Maximum Marks
4-Reviews (10 Marks each)	40
Report	10
Presentation	10
Viva	20
Peer Assessment	10
Self Assessment	10
Total Marks	**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.	William N. Bender, "Project-Based Learning: Differentiating Instruction for the 21st Century:,ASBD books, 2020.
2.	Jane I. Krauss (Author), Suzanne K. Boss (Author), " Thinking Through Project-Based Learning: Guiding Deeper Inquiry", 2019.
3.	Matthew Lamons,Rahul Kumar, Abhishek Nagaraja. "Python Deep Learning Projects: 9 projects demystifying neural network and deep learning models for building intelligent systems", Orelly., 2019

Detailed Syllabus
Lecture-wise Breakup

Course Code	17M27CS212	**Semester:** Odd	**Semester:** III **Session:** 2020 -2021 **Month from** Aug 2020 to Dec 2020
Course Name	Seminar and Term Paper		
Credits	4	**Contact Hours**	

Faculty (Names)	**Coordinator(s)**	Kavita Pandey
	Teacher(s) (Alphabetically)	Kavita Pandey

COURSE OUTCOMES		**COGNITIVE LEVELS**
C212.1	Summarize the literature around a significant research problem in the field of Computer Science	Understand (level 2)
C212.2	Analyze the research articles from a deeper perspective and examine the research gaps	Analyze (level 4)
C212.3	Improve the communication and writing skills by compiling the findings in the form of report and seminar	Evaluate (level 6)

Evaluation Criteria

Components	**Maximum Marks**
Day to day work prior to Midterm	20
Mid term Seminar and Report	20
Day to day work after Midterm	20
End term Seminar	20
Term Paper	20
Total	**100**

Detailed Syllabus
Lecture-wise Breakup

Course Code	17M27CS213	**Semester:** Odd	**Semester:** III **Session:** 2020 -2021 **Month from** Aug 2020 to Dec 2020
Course Name	Dissertation		
Credits	**4**	**Contact Hours**	8

Faculty (Names)	**Coordinator(s)**	Dr. Shikha Jain
	Teacher(s) (Alphabetically)	Dr. Shikha Jain

COURSE OUTCOMES		**COGNITIVE LEVELS**
C213.1	Identify a research problem after thorough literature survey.	Understand (Level-2)
C213.2	Apply the acquired knowledge in the field of computer science while proposing a solution to the identified research problem.	Apply (Level-3)
C213.3	Implement the proposed solution to exhibit the programming skill.	Analyze (Level-4)
C213.4	Evaluate the solution to meet the given set of requirements.	Analyze (Level-4)
C213.5	Demonstrate and defend their research work to a panel of experts.	Evaluate (Level-5)
C213.6	Demonstrate the research output in terms of publications.	Create (Level-6)

Evaluation Criteria :

Day to day work to be awarded by Supervisor - 40 Marks

End Semester Evaluation by a panel of Examiners - 60 Marks

Total **100 Marks**

Detailed Syllabus
Lecture-wise Breakup

Course Code	17M27CS214	**Semester:** Odd	**Semester:** III **Session:** 2020 -2021 **Month from** Aug 2020 to Dec 2020
Course Name	Industrial Project (DA)		
Credits	4	**Contact Hours**	8

Faculty (Names)	**Coordinator(s)**	Dr. Shikha Jain
	Teacher(s) (Alphabetically)	Dr. Shikha Jain

COURSE OUTCOMES		**COGNITIVE LEVELS**
C214.1	Identify an organization and relevant project as problem	Understand (Level-2)
C214.2	Review relevant literature related to identified project	Understand (Level-2)
C214.3	Apply acquired Computer Science concepts and tools to solve the business-related problem	Apply (Level-3)
C214.4	Analyze various solution alternatives to solve the given problem	Analyze (Level-4)
C214.5	Evaluate proposed solution with respect to alternatives to establish its efficacy	Evaluate (Level-5)
C214.6	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	18M12MA111	**Semester:** Odd	**Semester:** III **Session:** 2020-21 **Month from** Aug 2020 to Dec 2020
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**
C203.1	Construct and solve linear programming problems and analyze their optimal solution using parametric and sensitivity analysis	Analyze Level (C4)
C203.2	Identify and solve the inventory models with and without shortages.	Apply Level (C3)
C203.3	Construct the network diagram and analyze the critical activities using PERT/CPM for project planning.	Analyze Level (C4)
C203.4	Identify pure and mixed strategy games and solve and analyze them using graphical and linear programming techniques.	Analyze Level (C4)
C203.5	Solve multi-objective programming problems by graphical and simplex method.	Analyze Level (C4)
C203.6	Demonstrate Kuhn-Tucker conditions and apply them to solve non-linear programming problems, quadratic and separable programming problems.	Analyze 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 programming technique, rules of dominance.	**6**

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.

Detailed Syllabus
Lecture-wise Breakup

Course Code	19M13HS211	**Semester:** Odd	**Semester:** III **Session:** 2020 -2021 **Month from** Aug 2020 to Dec 2020
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

COURSE OUTCOMES		**COGNITIVE LEVELS**
C202.1	Demonstrate an understanding of the conflict between the Fundamental Rights and Directive Principles as given in the 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	• History • Drafting Committee-Composition & Working	3
2.	Philosophy of the India Constitution	• Preamble • Salient Features	1
3.	Fundamental Rights and Directive Principles	• Right to Equality • Right to Freedom • Right against Exploitation • Right to Freedom of Religion • Cultural and Educational Rights	5

		• Right to Constitutional Remedies • Directive Principles of State Policy	
4.	Organs of Governance	• 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	• 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	• Election Commission: Role and Functioning	3
Total number of Lectures			**28**

Evaluation Criteria

Components	**Maximum Marks**
Mid Term Examination:	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). *The Indian Constitution: Corner Stone of a Nation*. Oxford: Oxford University Press

2.	Bakshi, P.M.(2015). *The Constitution of India*. Delhi: Universal Law Pub. Co. Pvt. Ltd
3.	Bhuyan, D. (2016). *Constitutional Government and Democracy in India*. Cuttack:Kitab Mahal..
4.	Busi, S.N. (2016). *Dr. B. R. Ambedkar framing of Indian Constitution*. Hyderabad: Ava Publishers
5.	Basu, D.D. (2018). *Introduction to the Constitution of India*. Nagpur: Lexis Nexis
6.	Jayal, N.G. & Mehta, P.B. (eds.)(2010). *The Oxford Companion to Politics in India*. New Delhi: Oxford University Press.