SVKM's NMIMS
Mukesh Patel School of Technology Management & Engineering

Program: B. Tech (Computer Science and Business Systems)				**Semester:** VIII	
Course : Services Science & Service Operational Management				**Code:** 702CO0C048	
Teaching Scheme				**Evaluation Scheme**	
Lecture (Hours per week)	**Practical (Hours per week)**	**Tutorial (Hours per week)**	**Credit**	**Internal Continuous Assessment (ICA) (Marks -50)**	**Term End Examinations (TEE) (Marks -100)**
3	2	0	4	Marks Scaled to 50	Marks Scaled to 50

Pre-requisite: Fundamentals of Management, Operations Research

Course Objective:
The objective of the course is to understand the growing significance and impact of services on the growth and economy and the scientific ways to run the operations so as to optimize the business and brand returns.

Course Outcomes:
After completion of the course, student will be able to-

1. Understand concepts about Services and distinguish it from Goods
2. Able to identify characteristics and nature of Services
3. Comprehend ways to design Services and evaluate them using Service qualities
4. Understand how various methods can be used to operate and manage Service businesses
5. Understand how innovation can be approached from Services point of view

Detailed Syllabus:

Unit	Description	Duration
1	**Introduction:** Introduction to the course, Introduction to service operations, Role of service in economy and society, Introduction to Indian service sector.	10
	Nature of Services and Service Encounters: Differences between services and operations, Service package, characteristics, various frameworks to design service operation system, Kind of service encounter, importance of encounters.	
	Service-Dominant Logic: From Goods-Dominant logic to Service-Dominant logic, Value Co-creation.	

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2	**Service Strategy and Competitiveness:** Development of Strategic Service Vision (SSV), Data Envelopment Analysis.	12
	New Service Development: NSD cycle, Service Blueprinting, Elements of service delivery system.	
	Service Design: Customer Journey and Service Design, Design Thinking methods to aid Service Design.	
	Locating facilities and designing their layout: models of facility locations (Huff's retail model), Role of service-scape in layout design.	
	Service Quality: SERVQUAL, Walk through Audit, Dimensions of Service quality & other quality tools.	
3	**Service Guarantee & Service Recovery:** How to provide Service guarantee? How to recover from Service failure?	3
4	**Forecasting Demand for Services:** A review of different types of forecasting methods for demand forecasting.	10
	Managing Capacity and Demand: Strategies for matching capacity and demand, Psychology of waiting, Application of various tools used in managing waiting line in services.	
	Managing Facilitating Goods: Review of inventory models, Role of inventory in services.	
	Managing service supply relationship: Understanding the supply chain/hub of service, Strategies for managing suppliers of service.	
	Vehicle Routing Problem: Managing after sales service, Understanding services that involve transportation of people and vehicle, Techniques for optimizing vehicle routes.	
5	**Service Innovation:** Services Productivity, Need for Services Innovation.	10
	Student Project: Option 1: Choose any service organization around and present it from the perspective of: nature of service, classification of service, blueprint or service	

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	design analysis, service quality, and any additional perspective you would like to add. Option 2: Choose any latest research paper in services and explain your understanding and feedback on the same.	
	Total	**45**

Text Books:

1. Fitzsimmons & Fitzsimmons, "Service Management: Operations, Strategy, Information Technology", McGraw Hill publications, 7th edition, 2017

References:

Reference Books:

1. Wilson, A., Zeithaml, V. A., Bitner, M. J., & Gremler, D. D., "Services marketing: Integrating customer focus across the firm", McGraw Hill, 7th edition, 2018
2. Lovelock C., "Services Marketing", Pearson Education India, 7th Edition, 2011
3. Reason, Ben, and Lovlie, Lavrans, "Service Design for Business: A Practical Guide to Optimizing the Customer Experience", Pan Macmillan India, 2016
4. Chesbrough, H., "Open services innovation: Rethinking your business to grow and compete in a new era", John Wiley & Sons, 2010.

Reference Papers:

1. Karmarkar, U. (2004). Will you survive the services revolution? Harvard Business Review, 100-107.
2. Vargo, S. L., & Lusch, R. F. (2008). From goods to service (s): Divergences and convergences of logics. Industrial marketing management, 37(3), 254-259.
3. Vargo, S. L., & Lusch, R. F. (2008). "Service-Dominant Logic: Continuing the Evolution," Journal of the Academy of Marketing Science (36:1), pp. 1-10
4. Silvestro, R., Fitzgerald, L., Johnston, R., & Voss, C. (1992). Towards a classification of service processes. International journal of service industry management, 3(3), 62-75.
5. Vargo, S. L., Maglio, P. P., & Akaka, M. A. (2008). On value and value co-creation: A service systems and service logic perspective. European management journal, 26(3), 145-152.
6. Shostack, G.L., (1984), "Designing Services That Deliver," Harvard Business Review, January-February 1984, pp. 132-139
7. Evenson, S., & Dubberly, H. (2010). Designing for service: Creating an experience advantage. Introduction to service engineering, 403-413.
8. Edvardsson, B., & Olsson, J. (1996). Key concepts for new service development. Service Industries Journal, 16(2), 140-164.
9. Goldstein, S. M., Johnston, R., Duffy, J., & Rao, J. (2002). The service concept: the missing link in service design research? Journal of Operations management, 20(2), 121-134.
10. Kumar, A., Zope, N. R., & Lokku, D. S. (2014, April). An approach for services design by understanding value requirements, identifying value carriers, developing value proposition,

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and subsequently realizing value. In Global Conference (SRII), 2014 Annual SRII (pp. 298-304). IEEE.
11. Parasuraman, A., Zeithaml, V.A., and Berry, L.L., (1985), "A Conceptual Model of Service Quality and Its Implications for Future Research," The Journal of marketing, Vol. 49, No. 4, pp. 41-50
12. Cronin, J.J., and Taylor, S.A., (1992), "Measuring Service Quality: A Reexamination and Extension," The Journal of Marketing, Vol. 56, No. 3, pp. 55-68
13. Van Ree, H. J., (2009), Service Quality Indicators for Business Support Services, Ph.D. Thesis, University College London, London.
14. Zope, N. R., Anand, K., & Lokku, D. S. (2014, April). Reviewing Service Quality for IT Services Offerings: Observations in the Light of Service Quality Models & Determinants. In Global Conference (SRII), 2014 Annual SRII (pp. 43-49). IEEE.
15. Heskett, J.L., Jones, T.O., Loveman, G.W., Sasser, W.E., and Schlesinger, L.A., (2008), "Putting the Service-Profit Chain to Work," Best of HBR, Harvard Business Review, July-August 2008, pp. 118-128
16. Clatworthy, S. (2011). Service innovation through touch-points: Development of an innovation toolkit for the first stages of new service development. International Journal of Design, 5(2).
17. Barras, R. (1986). "Towards a Theory of Innovation in Services," Research Policy (15), pp. 161-173.
18. Gustafsson, A., and Johnson, M. (2003). Competing in a Service Economy: How to Create a Competitive Advantage Through Service Development and Innovation, San Francisco: Jossey-Bass.
19. Barrett, M., Davidson, E., Prabhu, J., & Vargo, S. L. (2015). "Service innovation in the digital age: key contributions and future directions". Mis Quarterly, 39(1), 135-154.
20. Lusch, R. F., and Nambisan, S. (2015). "Service Innovation; A Service-Dominant Logic Perspective," MIS Quarterly (39:1), pp.155-175

Laboratory / Tutorial work

8 to 10 experiments (and a practicum where applicable) based on the syllabus.

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Program: B. Tech (Computer Science and Business Systems)				**Semester:** VIII	
Course: IT Project Management				**Code:** 702CO0C049	
Teaching Scheme				**Evaluation Scheme**	
Lecture (Hours per week)	**Practical (Hours per week)**	**Tutorial (Hours per week)**	**Credit**	**Internal Continuous Assessment (ICA) (Marks -50)**	**Term End Examinations (TEE) (Marks -100)**
3	2	0	4	Marks Scaled to 50	Marks Scaled to 50

Pre-requisite: Software Engineering, Software Design with UML

Course Objective:

The objective of the course is to impart the knowledge of stages in the system development lifecycle and the activities that are carried out to implement an IT application. Students will be able to manage scope, time and budgets for IT projects, evaluate agile project management techniques for IT projects and learn why automation, culture, and metrics are essential to a successful DevOps project

Course Outcomes:

After completion of this course, student will be able to

1. Learn the techniques to effectively plan, manage, execute, and control projects within time and cost targets with a focus on Information Technology and Service Sector
2. Apply agile project management techniques such as Scrum and DevOps on real time projects

Detailed Syllabus:

Unit	Description	Duration
1	**Project Overview and Feasibility Studies:** Identification, Market and Demand Analysis, Project Cost Estimate, Financial Appraisal	**5**
2	**Project Scheduling:** Project Scheduling, Introduction to PERT and CPM, Critical Path Calculation, Precedence Relationship, Difference between PERT and CPM, Float Calculation and its importance, Cost reduction by Crashing of activity.	**5**
3	**Cost Control and Scheduling:** Project Cost Control (PERT/Cost), Resource Scheduling & Resource Levelling	**4**
4	**Project Management Features:** Risk Analysis, Project Control, Project Audit and Project Termination	**4**
5	**Agile Project Management:** Introduction, Agile Principles, Agile methodologies, Relationship between Agile Scrum, Lean, DevOps and IT Service Management (ITIL).	**7**
6	**Scrum:**	**8**

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	Various terminologies used in Scrum (Sprint, product backlog, sprint backlog, sprint review, retro perspective), various roles (Roles in Scrum), Best practices of Scrum.	
7	**DevOps:** Overview and its Components, Containerization Using Docker, Managing Source Code and Automating Builds, Automated Testing and Test Driven Development, Continuous Integration, Configuration Management, Continuous Deployment, Automated Monitoring.	**8**
8	**Other Agile Methodologies:** Introduction to XP, FDD, DSDM, Crystal.	**4**
	Total	**45**

Text Books:

1. Mike Cohn, "Succeeding with Agile: Software Development Using Scrum", Addison-Wesley, 2010
2. Schwalbe, "Information Technology Project Management", Course Technology Inc, 9th Edition, 2018.

References:

1. Roman Pichler, "Agile Product Management with Scrum", Pearson Education, 2011
2. Ken Schwaber, "Agile Project Management with Scrum (Microsoft Professional)", Microsoft Press, 2004
3. Hughes, "Project Management for IT-related Projects", BCS Publications, 3rd Edition, 2019
4. Wysocki, "R Effective Project Management: Traditional, Agile, Extreme" Wiley, 8th Edition, 2019

Laboratory / Tutorial work

8 to 10 experiments (and a practicum where applicable) based on the syllabus.

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Program: B. Tech (Computer Science and Business Systems)				**Semester:** VIII	
Course: Industrial Psychology				**Code:** 702TM0E003	
Teaching Scheme				**Evaluation Scheme**	
Lecture (Hours per week)	**Practical (Hours per week)**	**Tutorial (Hours per week)**	**Credit**	**Internal Continuous Assessment(ICA) (Marks -50)**	**Term End Examinations (TEE) (Marks -50)**
2	0	0	2	Marks Scaled to 50	Marks Scaled to 50

Pre-requisite: Introduction to Innovation, IP Management & Entrepreneurship

Course Objective

To introduce students to the content areas of industrial psychology and the application of psychological theory to organizational issues. Topics include employment law, job analysis, recruitment and selection, training, performance appraisal and discipline, employee motivation, and workplace safety. Using an applied approach, this course will help prepare students for their roles as employees and managers.

Course Outcomes

After completion of this course, Student will be able to

1. Become conversant about the major content areas of Industrial Psychology (i.e., job analysis, recruitment, selection, employment law, training, performance management, and health/well-being issues in the workplace).
2. Gain further comfort with statistical concepts in the context of making personnel decisions to reinforce content learned in PSY203 or an equivalent introductory statistics course.
3. Gain practical experience by completing a series of hands-on projects involving job analysis, selection decisions, training programs, and employee well-being.
4. Deepen your understanding of tests and measurements so that you can collect accurate information and make sound data-based decisions.
5. Prepare for other focused seminar courses in Industrial/Organizational Psychology or Human Resource Management.

Detailed Syllabus:

Unit	Description	Duration
1	What is I/O Psychology? Research Methods, Statistics, and Evidence-based Practice,	06
	Introduction & Legal Context of Industrial Psychology, Job Analysis & Competency Modeling, Job Evaluation & Compensation, Job Design & Employee Well-Being, Recruitment.	

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2	Identifying Criteria & Validating Tests and Measures, Screening Methods, Intensive Methods	**04**
3	Performance Goals and Feedback, Performance Coaching and Evaluation, Evaluating Employee Performance.	**06**
4	Employee Motivation, Satisfaction and Commitment, Fairness and Diversity	**05**
5	Leadership, Organizational Climate, Culture, and Development, Teams in Organizations, The Organization of Work Behavior	**05**
6	Stress Management: Demands of Life and Work	**04**
	Total	**30**

Text Books:

1. Landy, F. J. and Conte, J. M., Work in the 21st Century , Oxford: Blackwell Publishing, 4th Edition, 2013

References:

1. Ronald E. Riggio *'Introduction to Industrial and Organizational Psychology'*, 6th Edition. Pearson
2. Paul M. Muchinsky and Satoris S. Culbertson, '*Psychology Applied to Work*, , Hypergraphic Press, 11th edition , 2015

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					w.e.f. 2023-24
Program : MBA Tech / B Tech Computer Science and Business Systems				**Semester :** VII / VIII	
Course: Marketing Management				**Code :**	
Teaching Scheme				**Evaluation Scheme**	
Lecture (Hours per week)	**Practical (Hours per week)**	**Tutorial (Hours per week)**	**Credit**	**Internal Continuous Assessment (ICA)**	**Term End Examinations (TEE)**
2	---	---	2	Marks 50	Marks 50

Pre-requisite: NIL

Course Objectives

1. To build the theoretical foundation of marketing concepts and consumer markets.
2. To understand the basic concepts of creating value, building strong brands, delivering value and communicating value
3. To orient the students on how to apply the marketing principles to develop a market plan.

Course Outcomes

After completion of the course, students would be able to:

1. Define and explain marketing concepts.
2. Interpret and apply marketing conceptual frameworks.
3. Evaluate and recommend tactical marketing actions.

Detailed Syllabus:

Unit	Description	Duration
1	Introduction to Marketing: Concepts, and Orientations.	2
2	Definitions and key concepts related to: Consumer Decision Process	2
3	Segmenting, Targeting	2
4	• Positioning • Brand Equity	2
5	Setting Product strategy: Characteristics and classifications, Product mix pricing.	2
6	• Definition and Distinctive characteristics of Services Business • Product Life Cycle Strategy	2
7	New Product Development Process	2
8	Developing Pricing Strategies and programs	2
9	Designing and Managing Integrated Marketing Channels	2
10	Integrated Marketing Communications	2
11	Designing and Managing the Sales Force and Principles of Personnel Selling.	2
12	Decisions related to Global Entry strategies	2

13	Marketing Strategy Building Customer Value, Satisfaction and Loyalty, CLV, Relationship marketing, Database marketing	2
14	Competitive Strategies for Market Leaders, Challengers and Niches,	2
15	Student project presentations	2
	Total	**30**

Text Books:
Kotler, P., Keller, K. *Marketing Management;* 16/e, New Delhi: Pearson Education.

Reference Books:
Saxena, R. *Marketing Management;* 5/e, New Delhi: Tata McGraw Hill, 2009

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Program : B Tech / MBA Tech (EXTC/ Information Technology/ Computer Engineering/ Computer Science/ CSBS) / BTI (EXTC)					**Semester : V / VI / VII / VIII / XII**
Course : Image and Video Processing					**Code :** 702EX0E004
Teaching Scheme				**Evaluation Scheme**	
Lecture (Hours per week)	**Practical (Hours per week)**	**Tutorial (Hours per week)**	**Credit**	**Internal Continuous Assessment (ICA) (Marks - 50)**	**Term End Examinations (TEE) (Marks - 100)**
2	2	0	3	Marks Scaled to 50	Marks Scaled to 50

Pre-requisite: Signals and Systems, Discrete Time Signal Processing

Course Objective

This course introduces concepts, methodologies and performance metrics for still image and motion picture processing. It also helps to develop a foundation for further study and research in the signal processing domain.

Course Outcomes

After completion of the course, students will be able to -

1. Apply spatial domain enhancement techniques on grey images
2. Analyze various frequency domain transforms to process an image
3. Interpret the use of various morphological operations on images
4. Evaluate segmentation techniques for object detection
5. Illustrate video processing

Detailed Syllabus

Unit	Description	Duration
1.	**Image fundamentals** Basics of sampling and quantization, representing digital image, spatial and gray level resolution, basic relationships between pixels.	**02**
2.	**Image enhancement** Point processing techniques - digital negative, contrast stretching, thresholding, gray level slicing, bit plane slicing, log transformation, power law transformation, neighborhood processing-smoothing spatial filters, sharpening spatial filters, histogram processing-histogram equalization.	**06**
3.	**Image transforms** Walsh transform, Hadamard transform, discrete cosine transform.	**06**
4.	**Morphological image processing** Dilation, erosion, opening, closing, Hit–or-Miss transformation, basic morphological algorithms- boundary extraction on binary images, skeletonization, thinning, thickening.	**05**
5.	**Image segmentation** Detection of discontinuities- point, line and edge detection, edge linking and boundary detection using local processing, segmentation using	**06**

	thresholding, region based segmentation- region growing, region splitting and merging.	
6.	**Fundamentals of digital video** Video representation- digital video sampling, temporal correlation, video frame classifications, I, P and B frames, digital video quality measure.	**02**
7.	**Digital video processing techniques** Fundamentals of motion estimation, motion estimation algorithms- exhaustive search block matching, 2D-log search method and 3 step search method.	**03**
	Total	**30**

Text Books

1. R.C Gonzalez and Richard Woods, *Digital Image Processing*, Pearson publication, 4th Edition, 2018.
2. Ling Guan, *Multimedia Image and Video Processing*, CRC Press, 3rd Edition, 2017.

Reference Books

1. Bernd Jehne, *Digital Image Processing and Image Formation*, Springer, 6th Edition, 2022.
2. Wilhelm Burger and Mark J. Burge, *Digital Image Processing: An Algorithmic Introduction*, Springer publications, 2nd Edition, 2022.

Laboratory Work

8 to 10 practical exercises (and a practicum) based on the syllabus.

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