SGRR UNIVERSITY

**Brochure of Value-Added Courses
School of Computer Application &
Information Technology
2020-2021**

ABOUT THE UNIVERSITY

Shri Guru Ram Rai University was established by a religious and philanthropic leader, Shri Mahant Devendra Dass Ji Maharaj in the year 2017. It is situated in the heart of city, Uttarakhand. We are extremely privileged to extend the values and ethos of the Shri Guru Ram Rai Education mission through SGRR University to impart quality education and in successfully placing more than 80% students in various companies across the globe. SGRR University has humongous campus spread over 80 acres of land. Its state-of-art facilities give opportunities to develop leadership skills and to achieve professional excellence. It has 7000+ students from different countries, 29 states and Union Territories and providing cultural melange and global exposure to our students. One of the biggest boosts from University is its unmatched experience of delivering quality education that helps to develop confidence and will give you more knowledge, industry exposure, building good networking and high self-esteem. This will change your overall personality and develop you into a complete professional to face any challenge.
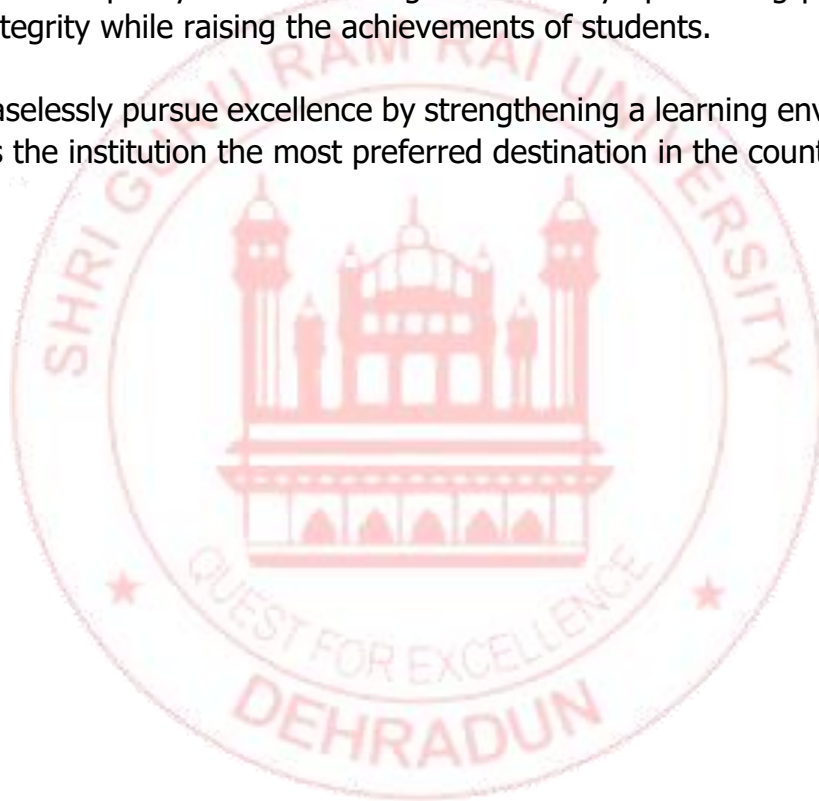
Vision

"To establish Sri Guru Ram Rai University to be a Center of Excellence in higher education, innovation and social transformation by nurturing inquisitive and creative minds and by enabling the stakeholders to become committed professionals and educators of national and global relevance."

Mission

❖ To provide a comprehensive and sustainable educational experience that fosters the spirit of enquiry, scientific thinking and professional competence along with ethical and spiritual values

❖ To deliver a classic, well rounded learning experience that is distinctive and impactful on the young generation preparing them for a successful career

❖ To engage, inspire and challenge the stakeholders to become leaders with ethics and positive contributors to their chosen field and humane citizens

❖ To attract, train and retrain qualified staff to work efficiently to bring forth the maximum resource potential

❖ To develop committed and responsible professionals who work for the welfare of the society by providing innovative and efficient solutions and creating long term relationship with the stakeholders

❖ To create a sustainable career, by collaborating with stakeholders and participating in community partnership for life and livelihood in the local society in a responsive and dynamic way

❖ To make our students globally competent by introducing specialized training leading to professional capabilities and developing diverse skills in them for competitive advantage.

❖ To establish quality standards for generations by epitomising professionalism and integrity while raising the achievements of students.

❖ To ceaselessly pursue excellence by strengthening a learning environment that makes the institution the most preferred destination in the country.

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INTRODUCTION

The ever-changing global scenario makes the world more modest and needs high levels of lateral thinking and the spirit of entrepreneurship to cope up with the emergent challenges. Many a times, the defined skill sets that are being imparted to students today with Programme Specific Objectives in educational institutions become redundant sooner or later due to rapid technological advancements. No university curriculum can adequately cover all areas of importance or relevance. It is important for higher education institutions to supplement the curriculum to make students better prepared to meet industry demands as well as develop their own interests and aptitudes.

Objectives The main objectives of the Value-Added Course are:

- ✓ To provide students an understanding of the expectations of industry.
- ✓ To improve employability skills of students.
- ✓ To bridge the skill gaps and make students industry ready.
- ✓ To provide an opportunity to students to develop inter-disciplinary skills.
- ✓ To mould students as job providers rather than job seekers.

Course Designing The department interested in designing a Value Added Course should undertake Training Need Analysis, discuss with the generic employers, alumni and industrial experts to identify the gaps and emerging trends before designing the syllabus.

Conduction of value added courses :

Value Added Course is not mandatory to qualify for any programme and the credits earned through the Value-Added Courses shall be over and above the total credit requirement prescribed in the curriculum for the award of the degree. It is a teacher assisted learning course open to all students without any additional fee.

Classes for a VAC are conducted during the RESERVED Time Slot in a week or beyond the regular class hours The value-added courses may be also conducted during weekends / vacation period. A student will be permitted to register only one Value Added Course in a Semester.

student will be encouraged to opt for the VAC offered by his/her parent Department/Faculty. Industry Experts / Eminent Academicians from other Institutes are eligible to offer the value-added course. The course can be offered only if there are at least 5 students opting for it. The students may be allowed to take value added courses offered by other departments after obtaining permission from Dean offering the course. The duration of value added course is 30 hours with a combination 18 hours (60%) of theory and 12 hours (40%) of practical. However, the combination of

theory and practical shall be decided by the course teacher with the approval of the Dean

GUIDELINES FOR CONDUCTING VALUE ADDED COURSES

- ❖ Value Added Course is not mandatory to qualify for any program.
- ❖ It is a instructor supported learning course open to all students without any added fee.
- ❖ Classes for VAC will be conducted during the **RESERVED** Time Slot in a week or beyond the regular class hours.
- ❖ The value-added courses may be also conducted during weekends / vacation period.
- ❖ A student will be permitted to register only one Value Added Course in a Semester.
- ❖ Students may be permitted to enrol in value-added courses offered by other departments/ Schools after obtaining permission from the Department's Head offering the course.

DURATION AND VENUE

- ❖ The duration of value-added course should not be less than 30 hours.
- ❖ The Dean of the respective School shall provide class room/s based on the number of students/batches.
- ❖ VAC shall be conducted in the respective School itself.

REGISTRATION PROCEDURE

The list of Value-Added Courses, along with the syllabus, will be available on the University Website. A student must register for a Value-Added Course offered during the semester by completing and submitting the registration form. The Department Head shall segregate according to the option chosen and send it to the Dean of the school offering the specific Value-Added Courses.

- ❖ Each faculty member in charge of a course is responsible for maintaining Attendance and Assessment Records for candidates who have registered for the course.
- ❖ The Record must include information about the students' attendance and   Assignments, seminars, and other activities that were carried out.

- ❖ The record shall be signed by the Course Instructor and the Head of the Department at the end of the semester and kept in safe custody for future verification.

- ❖ Each student must have a minimum of 75% attendance in all courses for the semester in order to be eligible to take certificate.

❖ Attendance requirements may be relaxed by up to 10% for valid reasons such as illness, representing the University in extracurricular activities, and participation in NCC.

❖ The students who have successfully completed the Value Added Course shall be issued with a Certificate duly signed by the Authorized signatories.

Database using MS Access

Course Code: VAC2020-45

Course Objective:

This course aims to equip participants with a comprehensive understanding of database design using MS Access, enabling them to create efficient, secure, and user-friendly databases for various applications.

Course Outcomes:

Design a simple database and Build a new database with related tables.
Manage the data in a table and Query a database using different methods.
Design a form and Generate a report for the data in a table

Module I : Introduction

Creating Database-Understanding Access, Starting a Database, Building first table ,Saving Databases, Opening Databases, Navigation Pane, Building Smarter Tables Design View, Access Data types, The Primary Key, Six Principles of Database Design, Sorting, Searching, and filtering.

Module II : Linking Tables with Relationships

Relationship Basics, Using a Relationships; Queries that Select Records-Query Basics, Creating Queries, Queries and Related Tables, Calculated Fields. Query Functions, Query Parameters, Totals Queries Crosstab Queries, Understanding Action, Update Queries, Append Queries, Delete Queries.

Module III : Creating Reports and Forms

Report Basics, Printing, Previewing, and Exporting a Report, Formatting a Report, Filtering and Sorting a Report; Designing Advanced Reports, Improving Reports in Design View. The Report Wizard, the Label Wizard; Creating Simple Forms Creating Forms Using Forms. Sorting and Filtering in a Form. Creating customized forms using Wizard

References:

- Mary Anne Poatsy; Eric Cameron; Robert Grauer Exploring Microsoft Office Access 2016 Comprehensive Pearson 1st/E
- KEVIN KELLY, CO-FOUNDER OF "Access2013 the missing manual®" WIRED

Matthew MacDonald OREILLY.

- Joyce Cox Joan Lambert Microsoft® Access® 2010 Step by Step.

Desktop publishing using MS office

Course Code: VAC2020-46

Course Objectives:

This course aims to empower participants with the skills and knowledge required for effective Desktop Publishing using MS Office applications, enabling them to create professional and visually engaging documents and presentations

Course Outcomes:

- Using and applying the design concepts of focus, balance, proportion, contrast, directional flow, consistency, and color
- Evaluating documents for the use of basic design concepts
- Using desktop publishing features of Microsoft Word 2016 to integrate basic layout and design concepts in order to enhance the readability of multiple-page, portrait, or landscape documents such as letterheads, postcards, business cards, certificates, flyers, brochures, online forms, and newsletters
- Producing and enhancing business and personal documents with variable page layouts using standardized type and graphic design techniques while incorporating updated Word 2016 features such as watermarks, Cover Pages, page borders, Themes, Quick Styles, Shapes, WordArt, SmartArt, Quick Parts, Picture Tools, Microsoft Office templates, Clip art on Office.com
- Publishing Word documents in a variety of formats, including PowerPoint presentations and web pages
- Becoming familiar with the basic features and capabilities of Microsoft Publisher 2016 to produce professional-looking flyers, brochures, and newsletters

Course content :

Module I: Introduction

Understanding the Desktop Publishing Process, Preparing Internal Workplace Documents

Module II: Creating Business and Personal Documents

Creating Letterheads, Envelopes, Business Cards, and Press Releases, Creating Personal Documents

Module III: Preparing Promotional Documents and Newsletters

Creating Promotional Documents—Flyers and Announcements, Creating Brochures and Booklets, Creating Specialty Promotional Documents, Creating Basic Elements of a Newsletter, Using Design Elements to Enhance Newsletters

Module IV: Producing Web Pages, Microsoft Publisher Documents, and PowerPoint Presentations

Creating Web Pages and Forms, Introducing Microsoft Publisher 2016, Creating Presentations Using PowerPoint

Module V: Performance Assessments

Portfolio Documents

References :

- "Desktop Publishing Using Microsoft for Windows Paperback – Import" by Dennis O. Gehris

- "Basics of Designing Desktop Publishing: With step-by-step instructions, screenshots, colour pages & CD Script" by Bittu Kumar"Microsoft Publisher 2016 Quick Reference Guide Introduction - Windows Version" by Inc. Beezix

- "Microsoft Publisher 2016: Compre.(Looseleaf)" by Joy L. Starks

Course Objective:
This course aims to equip participants with the skills and strategies needed to overcome challenges in programming, fostering a resilient and adaptable mindset in the dynamic field of software development.

Course Outcomes:
- Understand the software development life cycle and its coding phase challenges.
- Apply techniques for code optimization and efficiency to improve performance.
- Demonstrate effective debugging and troubleshooting skills.
- Implement secure coding practices and error handling mechanisms.
- Utilize version control and collaborative coding strategies.
- Analyze legacy code and propose refactoring solutions.
- Evaluate code quality, documentation, and external dependencies.
- Create efficient, secure, and well-documented code to meet project requirements.

COURSE CONTENTS

Module I: Introduction to Software Development Challenges
Understanding the software development life cycle., Identifying common challenges faced during the coding phase., Role of code quality and maintainability. Techniques for optimizing code for speed and memory usage., Identifying performance bottlenecks and applying suitable solutions., Importance of algorithmic efficiency.

Module II: Debugging, Troubleshooting, Code Security and Error Handling
Strategies for debugging code effectively., Use of debugging tools and techniques., Common coding errors and how to avoid them, Basics of software security., Common vulnerabilities and how to avoid them., Best practices for secure coding., Understanding and implementing error handling mechanisms., Handling exceptions and writing robust code

Module III: Version Control, Collaboration, and Documentation
Introduction to version control systems (e.g., Git)., Collaborative coding using version control.

Branching and merging strategies., Integration of third-party APIs and libraries., Handling external dependencies., Risks and precautions while using external code., Importance of code documentation., Writing meaningful comments and documentation., Tools for generating documentation.

Module IV: Dealing with Legacy Code, Project Management, and Emerging Trends

Challenges when working with legacy codebases., Techniques for refactoring and modernizing legacy code., Strategies for maintaining and extending legacy applications., Meeting deadlines and managing time effectively., Agile development methodologies., Handling changing requirements and scope., Introduction to new programming paradigms and languages., Exploring cutting-edge tools and frameworks., Challenges and opportunities with new technologies.

Text Books:
- Clean Architecture: A Craftsman's Guide to Software Structure and Design by Robert C. Martin
- Code Complete: A Practical Handbook of Software Construction by Steve McConnell

Working Effectively with Legacy Code by Michael C. Feathers
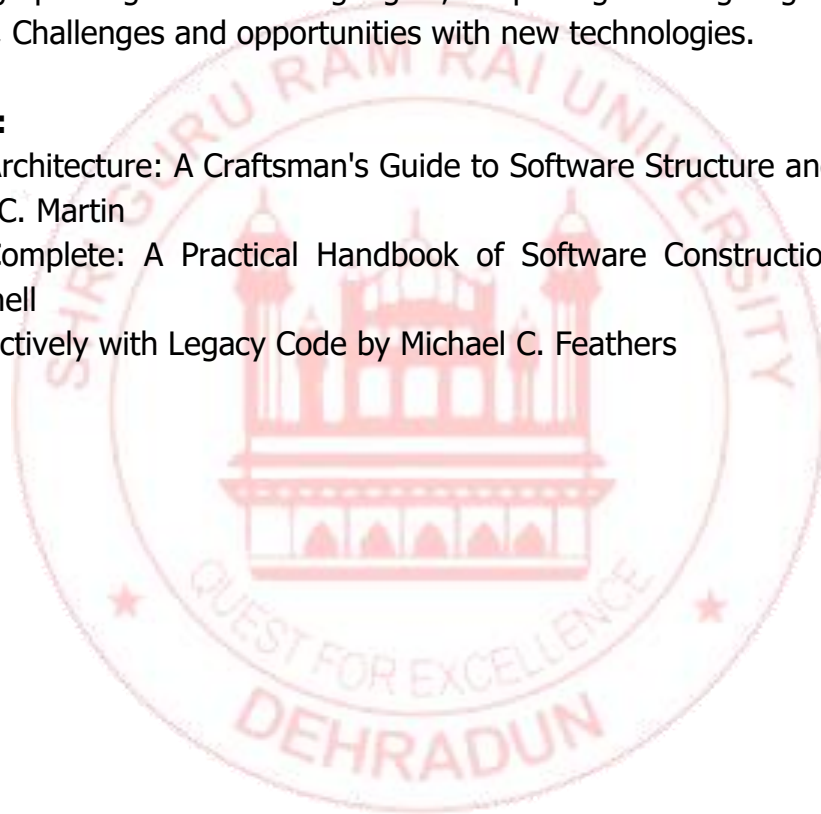
Introduction to digital marketing

Course Objectives:

- To provide an overview of the fundamentals and key concepts of digital marketing.
- To familiarize students with the various channels and tools used in digital marketing.
- To understand the importance of digital marketing in the contemporary business landscape.
- To develop basic skills in planning, executing, and measuring digital marketing campaigns.
- To explore emerging trends and technologies in the field of digital marketing.

Course Outcomes:

- Students will have a comprehensive understanding of digital marketing principles.
- Ability to identify and analyze various digital marketing channels and platforms.
- Proficiency in developing basic digital marketing strategies and campaigns.
- Skills in using digital marketing tools for analysis, optimization, and reporting.
- Awareness of the evolving trends and innovations in digital marketing**.**

Course content :

Module I: Introduction to Digital Marketing

- Definition and Scope of Digital Marketing
- Evolution of Digital Marketing
- Role and Importance in Modern Business

Module II : Digital Marketing Channels

- Search Engine Optimization (SEO)
- Social Media Marketing (SMM)
- Email Marketing
- Content Marketing
- Pay-Per-Click (PPC) Advertising

Module III : Digital Marketing Tools and Analytics

- Google Analytics
- Social Media Management Tools
- Email Marketing Platforms
- SEO Tools
- Key Performance Indicators (KPIs) in Digital Marketing

Module IV : Planning and Executing Digital Marketing Campaigns

- Developing a Digital Marketing Strategy

- Target Audience Identification
- Content Creation and Distribution
- Campaign Execution and Optimization

Module V : Emerging Trends and Future of Digital Marketing

- Artificial Intelligence in Digital Marketing
- Voice Search Optimization
- Augmented Reality (AR) and Virtual Reality (VR)
- Data Privacy and Ethical Considerations
- Industry Case Studies and Guest Speaker Sessions

Recommended Books and Resources:

- "Digital Marketing: Strategy, Implementation and Practice" by Dave Chaffey and Fiona Ellis-Chadwick.
- "Contagious: How to Build Word of Mouth in the Digital Age" by Jonah Berger.
- "Everybody Writes: Your Go-To Guide to Creating Ridiculously Good Content" by Ann Handley.
- "Invisible Selling Machine" by Ryan Deiss.
- Online Resources: HubSpot Academy, Google Digital Garage, Moz Blog.
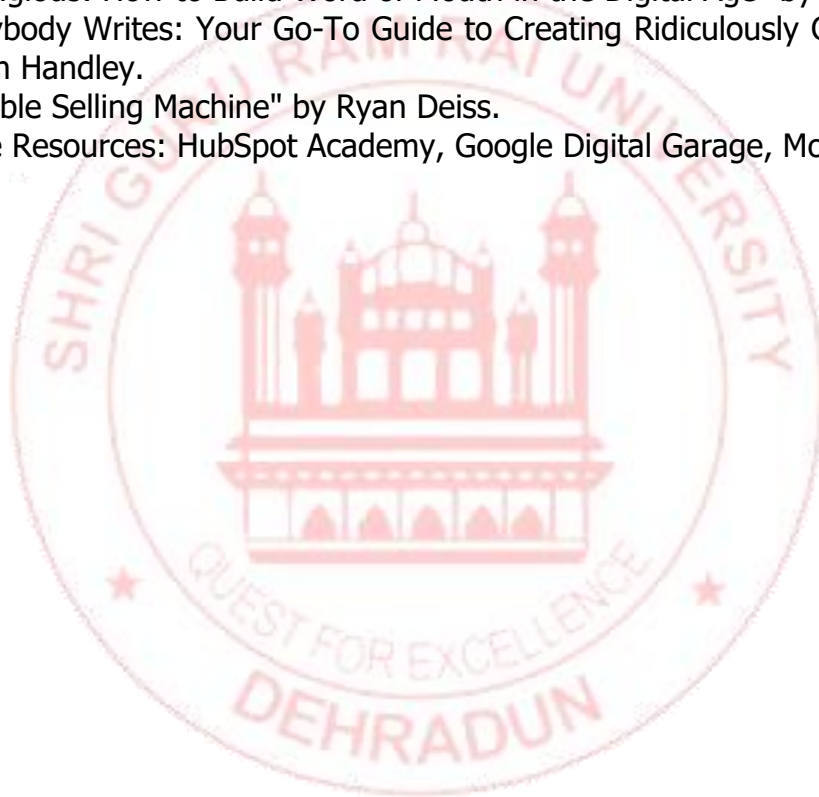
Artificail Intellignece and its applications

Course Code: VAC2020-49

Course Objectives:

- To provide a comprehensive understanding of the principles and concepts of artificial intelligence (AI).
- To explore the various applications of AI across different industries and domains.
- To understand the ethical considerations and societal impact of AI technology.
- To develop basic skills in implementing and evaluating AI solutions.
- To keep students abreast of the latest trends and advancements in the field of AI.

Course Outcomes:

- Students will have a strong foundation in the fundamental concepts of artificial intelligence.
- Proficiency in identifying and analyzing real-world applications of AI technology.
- Understanding of ethical considerations and responsible AI practices.
- Ability to implement basic AI solutions and evaluate their performance.
- Awareness of emerging trends and innovations in the field of artificial intelligence.

Course content :

Module 1: Introduction to Artificial Intelligence

- Definition and History of AI
- Types of AI: Narrow vs. General Intelligence
- Importance and Impact of AI in Modern Society

Module 2: AI Techniques and Algorithms

- Machine Learning: Supervised and Unsupervised Learning
- Deep Learning and Neural Networks
- Natural Language Processing (NLP) and Computer Vision

Module 3: Applications of AI in Various Industries

- Healthcare and Medical Diagnosis
- Finance and Fraud Detection
- Retail and Personalized Marketing
- Autonomous Vehicles and Transportation
- Manufacturing and Industry 4.0

Module 4: Ethical Considerations and Responsible AI

- Bias and Fairness in AI
- Privacy Concerns and Data Security
- Transparency and Accountability in AI Systems
- AI and Job Displacement: Social and Economic Impacts

Module 5: Emerging Trends and Future of AI

- Reinforcement Learning and Generative AI
- AI in Edge Computing and IoT
- AI in Robotics and Human-Machine Collaboration
- Industry Case Studies and Guest Speaker Sessions

References:

- "Artificial Intelligence: A Modern Approach" by Stuart Russell and Peter Norvig.
- "Life 3.0: Being Human in the Age of Artificial Intelligence" by Max Tegmark.
- "Artificial Intelligence: Foundations of Computational Agents" by David L. Poole and Alan K. Mackworth.
- "Artificial Intelligence: A Guide for Thinking Humans" by Melanie Mitchell.
- Online Resources: MIT OpenCourseWare - Introduction to Deep Learning, TensorFlow Tutorials.
- Practical projects involving the implementation of AI algorithms.
- Guest lectures from industry experts and researchers.
- Group discussions on ethical considerations in AI development.
- Field visits or virtual tours to AI research labs or companies.