

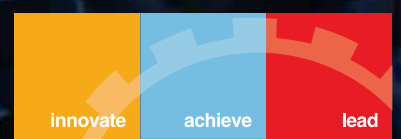


BITS Pilani

Pilani | Dubai | Goa | Hyderabad | Mumbai

**WORK INTEGRATED
LEARNING PROGRAMMES**

M.Tech. Software Engineering for Working Professionals



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Program Introduction

M.Tech. Software Engineering at BITS WILP is a unique work-integrated learning programme for professionals in the software industry. It equips learners with a full stack of technologies, essential competencies, and specialized knowledge in areas like Full Stack Engineering and Software Product Management.

With a comprehensive curriculum, hands-on experiential learning through remote and cloud labs, and flexible education methods, this program empowers professionals to excel in the software industry, where career growth demands expertise in various technologies, solution architecture, product design, and effective collaboration across functions.



Programme Highlights



M.Tech. Software Engineering is a BITS Pilani Work Integrated Learning Programme (WILP). BITS Pilani Work Integrated Learning Programmes are UGC approved



Blend of classroom and experiential learning



This programme is of 4 semesters and can be pursued only by working professionals. You can pursue the programme without any career break



The program offers core and elective courses for specialization in Full Stack Engineering and Software Product Management



The programme will also enable working professionals to attend contact classes from anywhere over a technology-enabled platform. The contact classes will be conducted mostly on weekends or after business hours



The final semester includes a practical Dissertation (Project Work) for real-world application





It extensively uses Cloud-based labs providing hands-on access to tools like Jenkins, Docker, GitHub, SonarQube, Selenium, and various programming languages and libraries such as Java, Python, JavaScript, and more



Lectures by BITS Pilani faculty and industry experts



Employs Continuous Evaluation to provide ongoing feedback and support



Become a part of Elite and Global BITS Pilani Alumni community



Emphasizes experiential learning with lab exercises, assignments, case studies, and work-integrated activities



Fee submission using easy - EMI with 0% interest and 0 down payment



Programme Objectives



Explore customer needs and market insights to identify software product opportunities



Define product requirements, create a strategy, and establish a roadmap for product rollout



Implement robust, maintainable, and scalable software products using contemporary software architectural and design principles



Develop, test, and deploy software while adhering to best practices, including automation with continuous integration and delivery



Manage the software product lifecycle using agile methodologies and rapid release cycles



Continuously evaluate product performance through relevant analytical methods to refine the roadmap and prioritize features



Apply software engineering and product management practices within specific domains



WILP Presence and Impact



45+

Years of
Educating Working
Professionals



1,36,900+

Working
Professionals
Graduated



46,150+

Working Professionals
Currently Enrolled



1100+

Faculty Members



47

Programmes



Student

Learning Outcomes

Upon successful completion of the program, participants will have developed:



An advanced knowledge of software architectural models and practices appropriate for engineering complex software systems



Competency in evaluating and adapting software development processes, and in tools needed for a range of applications from the conventional web/mobile apps to the modern cross-platform, cloud-native apps



Skills required for eliciting user needs, designing, implementing and releasing an effective solution employing state-of-the-art full stack frameworks, and technologies



Readiness to take an idea from concept through prototype creation to market launch with the help of tried-and-true methodologies practiced in software product management



An ability to effectively function individually and collaborate as a part of a software team to establish goals, plan tasks, and meet objectives



Mode of Learning

The Mode of Learning used in this programme is called - Work Integrated Learning. Internationally, Work Integrated Learning (WIL) is defined as "An educational approach involving three parties - the student, educational institution, and employer organization(s) - consisting of authentic work-focused experiences as an intentional component of the curriculum. Students learn through active engagement in purposeful work tasks, which enable the integration of theory with meaningful practice that is relevant to the students' discipline of study and/or professional development*.

An education model can be considered as WIL if and only if:

1. The programs are designed and developed by the institute in collaboration with industry.
2. Work-focused experiences form an active part of the curriculum.
3. The program structure, pedagogy and assessment enable integration of theory-with relevant practice.

The innovative **Work Integrated Learning Programs (WILP)** of BITS Pilani are quite aligned with the above definition and requirements. The programs are designed in collaboration with its industry partners, subject matter experts from industry and academia that enable the students to remain relevant in their chosen profession, grow in their career and retain the habit of lifelong learning. The continued availability of workplace related experiences along with the weekly instruction sessions promote integration of theory with practice. An active participation of the organization mentor in the learning process of the student plays a key role. Case studies, simulation exercises, labs and projects further strengthen this integration.

The **WILP** of BITS Pilani is comparable to its campus-based programs in terms of structure, rigor, instruction, labs, assessment, faculty profile and learning support. The pervasive adoption of technology in all its academic processes makes the same high-quality education of BITS Pilani available to the aspirants at scale with the required flexibility.





Key Benefits of BITS Pilani WILP

- Can pursue the programme without any career break and along with the job.
- The programme curriculum is highly relevant to sectors, industries and organisations they work for.
- In addition to the institute, the learning experience of working professionals in the programme is also supported by the employer organisation and Industry Mentors.
- Effective use of technology to deliver a range of learning interventions at the location of the working professional such as faculty contact sessions, asynchronous learning materials, remote, virtual and cloud labs, Learner support, peer to peer collaboration etc.
- Contact sessions with faculty take place mostly over weekends or after business hours and are conducted over a technology platform that can be accessed from anywhere.
- Mid semester and End semester examinations for every semester are conducted mostly at designated examination centres distributed across the country (for details refer to link mode of examinations).
- Learners can access engaging learning material which includes recorded lectures from BITS Pilani faculty members, course handouts and recorded lab content where applicable.



Experiential Learning



The programme emphasizes on Experiential Learning that allows learners to apply concepts learnt in the classroom in simulated, and real work situations. Apart from these, AWS is also extensively used for experiments on Scalable Services



Cloud based virtual lab hosts Dev-Ops tool chain, languages and programming platforms for Full Stack engineering and other simulators

Experiential Learning: Tools / Frameworks / Technologies





Continuous Assessment

The assessment includes graded assignments/quizzes, mid-semester and comprehensive exam

Case studies & Assignments

Carefully chosen real-world cases & assignments are both discussed and used as problem-solving exercises during the programme



Dissertation/ Project Work

The fourth semester offers an opportunity for learners to apply their knowledge gained during the programme to a real-world like complex project. The learner is expected to demonstrate understanding of vital principles learnt across semesters and their ability to successfully apply these concepts



Programme Curriculum

Participants need to take at least 12 courses towards coursework, and complete one Project/ Dissertation. The coursework requirement for the programme would consist of a set of core courses and electives. Core courses are compulsory for all participants, while electives can be chosen based on individual learning preferences.

First Semester

- Software Architectures
- Cloud Computing
- Agile Software Processes
- Software Product Management

Second Semester

- Software Quality Assurance and Testing
- Elective 1
- Elective 2
- Elective 3

Third Semester

- Elective 4
- Elective 5
- Elective 6
- Elective 7

Fourth Semester

- Dissertation

General Pool of Electives

- Data Structures & Algorithms
- Data visualization and Interpretation
- Artificial and Computational Intelligence
- Blockchain Technologies & Systems
- Cyber Security

- Data Warehousing
- Applied Machine Learning
- Secure Software Engineering
- Middleware Technologies
- Advanced topics in Software Engineering



**Pool of Electives :
Full Stack Engineering (FSE)**

- Cross Platform Application Development
- Introduction to DevOps#
- Scalable Services#
- Software Testing Methodologies
- Full-stack Application Development#
- Database Design & Applications
- API-based Products
- User Experience Design
- Design of Conversational Experiences
- API-driven Cloud Native Solutions
- Open Source Software Engineering
- Object Oriented Analysis and Design

**Pool of Electives :
Software Product Management**

- Product Discovery and Requirements Engineering#
- Product Strategy and Planning#
- Communication, Estimation and Negotiation#
- Product Analytics
- API-based Products
- User Experience Design
- Marketing
- Software Project Management
- Open Source Software Engineering

For any specialization, 4 courses (including mandatory electives marked #) are to be selected for that specialization.

For graduating without a specialization, at least 3 courses from those marked # (from either specialization) to be selected.

Note: Student can also obtain the degree without any specialization.

indicates mandatory elective for this specialization

Choice of Electives is made available to enrolled students at the beginning of each semester. A limited selection of Electives will be offered at the discretion of the Institute.



Courses Wise Syllabus

Software Architectures

Systems engineering and software architectures; Hatley°Pirbhai architectural template; architecture flow diagrams; requirements engineering and software architecture; architectural design processes; design post-processing; real- VII-68 time architectures; architectural design patterns; software architecture and maintenance management; object oriented architectures; client-server architectures; forward engineering for object oriented and client-server architectures; emerging software architectures.

Cloud Computing

Concurrency and distributed computing, message passing over the network, connectivity and failure models, local vs remote connectivity, distributed resource modeling, distributed data models; replication & consistency; virtualization; CPU virtualization, memory and storage virtualization, virtualized networks, computing over WAN and Internet; computing on the cloud, computing models, service models and service contracts, programming on the cloud; Cloud infrastructure, LAN vs Wan issue, resource scaling and resource provisions, performance models, scalability, performance measurement and enhancement techniques; cloud applications and infrastructure services.

Agile Software Processes

Introduction to Agile; Basics of Agile Software Development approaches; Principles of Agile; Agile Methodologies; Release Planning; Roles and Artifacts in Agile; Agile Requirements; Iteration Planning and Ceremonies; Executing a Sprint; Agile Metrics; Agile Testing and Maintenance; Agile Pitfalls; Ensuring Agile Success.

Software Product Management

Identifying customer needs. Defining value proposition. Specifying and validating MVP. Building products through agile and scrum. Metrics, measurement and improvements. Software product lifecycle management; analytical evaluation techniques; quality systems.



Software Quality Assurance and Testing

Quality assurance, management and testing; SQA process and activities; Quality planning, metrics and QMS; Team structure & organization of SQA; Quality control tools, Six-Sigma methodology; Types of quality; Software testing as a tool for improving quality; Planning, management & control of testing; Testing in different domains; Test Automation – Strategy, Process and Architecture.

Data Structures & Algorithms

Introduction to Abstract Data Types, Data structures and Algorithms; Analysis of Algorithms – Time and Space Complexity, Complexity Notation, Solving Recurrence Relations.; Divide-and-Conquer as a Design Technique; Recursion – Design of Recursive Functions / Procedures, Tail Recursion, Conversion of Recursive Functions to Iterative Form. Linear data structures – Lists, Access Restricted Lists (Stacks and Queues) – Implementation using Arrays and Linked Lists; Searching and Order Queries. Sorting – Sorting Algorithms (Online vs. Offline, In-memory vs. External, In^ospace vs. Out-of-space, QuickSort and Randomization). Unordered Collections: Hashtables (Separate Chaining vs. Open Addressing, Probing, Rehashing). Binary Trees – Tree Traversals. Partially Ordered Collections: Search Trees and Height Balanced Search Trees, Heaps and Priority Queues. Algorithm Design: Greedy Algorithms and Dynamic Programming. Graphs and Graph Algorithms: Representation schemes, Problems on Directed Graphs (Reachability and Strong Connectivity, Traversals, Transitive Closure. Directed Acyclic Graphs - Topological Sorting), Problems on Weighted Graphs (Shortest Paths. Spanning Trees). Introduction to Complexity Classes (P and NP) and NP-completeness. NP^oHard problems. Designing Algorithms for Hard Problems – Back tracking, Branch-and-Bound, and Approximation Algorithms.

Data visualization and Interpretation

Visualization as a Discovery tool, Visualization skills for the masses, The Visualization methodology, Visualization design objectives, Exploratory vs. explanatory analysis, Understanding the context for data presentations, 3 minute story, Effective Visuals, Gestalt principles of visual perception, Visual Ordering, Decluttering, Story Telling, Visualization Design; Taxonomy of Data Visualization Methods: Exploring Tableau, Dashboard and Stories, Bullet graphs, Pareto charts, Custom background images; Dashboard : Dashboard categorization and typical data, Characteristics of a Well-Designed Dashboard, Key Goals in the Visual Design Process; Power of Visual Perception: Visually Encoding Data for Rapid Perception, Applying the Principles of Visual Perception to Dashboard Design.



Artificial and Computational Intelligence

Agents and environments, Task Environments, Working of agents; Uninformed Search Algorithms: Informed Search. Local Search Algorithms & Optimization Problems: Genetic Algorithm; Searching with Non-Deterministic Actions, Partial Information and Online search agents, Game Playing, Constraint Satisfaction Problem, Knowledge Representation using Logics: TT-Entail for inference from truth table, Proof by resolution, Forward Chaining and Backward Chaining, Inference in FOL, Unification & Lifting, Forward chaining, Backward Chaining, Resolution; Probabilistic Representation and Reasoning : Inference using full joint distribution, Representation of Conditional Independence using BN, Reinforcement Learning; Difference between crisp and fuzzy logic, shapes of membership function, Fuzzification and defuzzification, fuzzy logic reasoning; Decision making with fuzzy information, Fuzzy Classification; Connectionist Models: Introduction to Neural Networks, Hopfield Networks, Perceptron Learning, Backpropagation & Competitive Learning, Applications of Neural Net: Speech, Vision, Traveling Salesman; Genetic Algorithms - Chromosomes, fitness functions, and selection mechanisms, Genetic algorithms: crossover and mutation, Genetic programming.

Blockchain Technologies & Systems

Highly successful decentralized blockchain-based systems, such as Bitcoin, have immense potential to revolutionize financial, information, and other infrastructures. This course aims to provide a broad overview of the essential concepts involved in blockchain technology in order to lay down the foundation necessary for developing applications. This course also covers the technical aspects of consistency and consensus in distributed algorithms, public distributed ledgers, public-key cryptography and cryptographic properties, cryptocurrencies, and smart contracts. The course aims to develop expertise among students to build these systems, interact with them, and to design and build secure distributed applications.

Cyber Security

Cyber Security principles; Security architectures; Security threats, attacks and vulnerabilities; CIA Triad, Cyber Security Policies, Models and Mechanisms; Types of Cyber Attacks; Security Risk Management; Malware; Ransomware; Implementing Cyber Security Solutions.

Data Warehousing

Introduction, evolution of data warehousing; decision support systems; goals, benefit, and challenges of data warehousing; architecture; data warehouse



information flows; software and hardware requirements; approaches to data warehouse design; creating and maintaining a data warehouse; Online Analytical Processing (OLAP) and multi-dimensional data, multi-dimensional modeling; view materialization; data marts; data warehouse metadata; data mining.

Applied Machine Learning

Need for machine learning. Prediction and classification methods. Use cases in application domains. Interpretation of results. Limitations of various techniques. End to end Machine learning - data collection, data preparation, model selection.

Secure Software Engineering

Best practices for designing secure systems, software engineering principles for designing secure systems, criteria for designing secure systems; analysis of system properties and verification of program correctness; use of formal methods and verification for security; tools for verification of security properties; techniques for software protection (such as code obfuscation, tamper-proofing and watermarking) and their limitations; analysis of software based attacks (and defenses), timing attacks and leakage of information, and type safety.

Middleware Technologies

Evolution of Middleware Technologies: Transaction Processing, Remote Procedure Calls, Message-Oriented^oMiddleware, Object Request Brokers, Web services and REST; Forms of Middleware: Enterprise Middleware, Web Middleware, and Cloud / Services Middleware; Middleware Elements: communication protocols, middleware protocols, data representation, server process control, naming and directory services, security, system management; Select case studies such as MS .NET, J2EE. Service Oriented Architecture: Loosely Coupled Systems, Business processes, Tiers, Architectural Choices; Resiliency in Middleware: resiliency techniques, hardware failures, communication failures, software failures; Performance and scalability in Middleware; Security in Middleware; Implementation Aspects: business process implementation, enterprise integration, web and database middleware (e.g. NoSQL middleware) change management. Case studies of Enterprise application architecture (EAI) - Eg. Tibco, Websphere.

Advanced Topics in Software Engineering

Recent and emerging topics in software engineering will be discussed in detail with the help of latest publications, software product information and industry practice.



Cross Platform Application Development

Cross-platform applications development involves creation of software applications that are compatible with multiple platforms or software environments. This can be achieved through various development frameworks like Ionic, React Native, Adobe PhoneGap, Xamarin etc. This course aims to equip students with the expertise to design and develop web and mobile based applications that can operate in varied environments and platforms. Additionally, it also aims to develop the understanding of the role and importance of API management in such applications. The course involves hands-on exposure to full stack development of cross°platform applications using some of the existing development frameworks.

Introduction to DevOps

Continual Service - continuous integration and continuous delivery; Scaling: automating infrastructure and infrastructure°as-code; DevOps and Cloud: platform-as-a service and DevOps, use of virtual machines and containers for deployment, Micro-services; application lifecycle management: deployment pipeline and application deployment, continuous deployment pipeline; stack management - life cycle of stack and events, resource and event monitoring, auto healing; Security: security of deployment pipeline, policy-as-code.

Scalable Services

Software principles related to scalability. Architectures for Scaling. Microservices - design, service discovery, load balancing, API management. Deployment - container configurations and orchestrations, automated deployments of microservices, integration with CI/CD pipelines. Performance: Scaling and load balancing with containers and microservices, Ensuring QoS and SLAs

Software Testing Methodologies

Software testing techniques and tools; software testing life cycle and its management; specification-based testing; code-based testing; model-based testing; integration testing; system testing; object oriented testing; regression testing; user acceptance testing; Automated testing at different levels (unit, integration, and system) – scripting and testing tools; test case minimization, prioritization & optimization.

Full-Stack Application Development

Evolution in web app architectures: Client Server - 2 tier, 3/n tiered, Layered; Distributed - SOA, Web Services, Microservices, Cloud (IaaS/PaaS/FaaS); Modern application landscape; Web applications: Typical structure of end-to-end



application; Application components-Frontend / Backend / API / Database / Services; Web Browsers - Client WebAPIs - Browsers APIs for storage, audio, video; Web Assembly; Responsive web; Web Servers; Load balancers; Application servers; API gateways; ORM; DNS; HTTP/S: HTTP headers, HTTP messages, HTTP request methods; Caching; Modern application architectures and Tech-Stacks: Microservices, Serverless; Application development Stacks-Conventional; Modern JavaScript stacks; (Full-Stack) Application Development: Languages (client/server side), Frameworks; Platforms, Deployment (on-prem/cloud); Databases(RDBMS/NoSQL); Interactions(method calls, APIs/REST, messaging); MEAN/MERN as exemplar frameworks.

Database Design & Applications

DBMS architecture; Data models: Network model, Hierarchical model and Relational model; Database design & optimization; Query processing & Query optimization; Transaction Processing; Concurrency control; Recovery; Security & protection; Introduction to Object Oriented data model & Multimedia Databases.

API-based Products

API-based Products: Case for digital business/transformation, API-based Product mindset; API users; API types, API paradigms; API ecosystem; API life cycle; Principles and elements of API design; Collaborative API design process; API Design-First approach; API standards and documentation; API architectural styles and implementation: REST, gRPC, GraphQL etc., API design and implementation; Async APIs; API design practices: Design patterns and anti-patterns; Scaling, API security, change management/versioning, API publish / release; maintenance/deprecation; API testing strategies: Acceptance testing, Automations, Contract testing; Tools; Developer Experience: DevRel and DX; Developer ecosystem strategy; Developer resources; API product management: API strategy, API economy, API revenue models; Metrics for API based Products; API management platforms; API lifecycle management; API analytics.

User Experience Design

UX principles; UX roles and responsibilities; UX design Frameworks; UX strategy; UX design process; UX research: Generative research, Evaluative research, Qualitative and Quantitative research; Usability studies; Observation techniques and feedback methodologies; Synthesis of results- Deriving actionable strategy from the observations; Empathizing with users and user perspective; Interaction design: User stories; User journey maps; Information architecture; UX writing;



Visual design: Wireframes; Prototypes, Storyboards; Design systems; Design for accessibility; Internationalization and Localization; UX evaluation- Testing and Validation; Design for Conversational UI- Chatbots, Personal/Voice Assistants; Proximity-based UI.

Design of Conversational Experiences

Cognitive virtual assistant (CVA): Use-cases; Classification of conversational AI platforms; Architecture of Conversational Platform; Deployment and Pricing models; Platform landscape; Designing Bots: Bot Architecture; Bot Anatomy; Design process overview; Branding, Personality, and Human Involvement; Conversation; Rich interactions; Engagement methods; Use case definition and exploration; Conversation scripting; Context and Memory; User testing; Designing Voice User Interfaces(VUI): Conversational Voice User Interface(VUI); VUI Designer; VUI design principles; Designing effective process and dialogue; Personas, Avatars, Actors; Speech recognition technology; Advanced VUI Design; User testing; Development: Building and deploying conversational AI assistants (voice assistants & chatbots) using cloud native / open source platforms such as Google Dialogflow, RASA or MS Bot framework; Bot Discovery and installation; Monetization; Analytics and Continuous improvement; Trends: SuperBot Platforms; Multiplatform Bots; Identity consolidation; Voice-enabled Devices – Smart Homes and Smart Cars as example environments.

API-driven Cloud Native Solutions

Analyze, Design, Develop and Deploy cloud native applications in innovative areas such as Artificial Intelligence/Machine Learning (AI/ML), IoT, Data Analytics etc.; Build an end to end complex application; Extensive usage of well-known PaaS/APIs; Demonstration of compliance with relevant, industry adapted best practices; Deployment using modern strategies; Presentation of the milestones and outcomes in appropriate forms; Periodic review of progress of the project by faculty.

Open Source Software Engineering

Understanding Open Source Software: The Cathedral and the Bazaar, Teams and Hierarchies, Processes, Licensing, and Business Models; Code walking and analysis of Open Source Products: Analyze the code of a few select products – extract data flow and control flow from an input-output perspective or a high level events perspective; Tools and Technologies in the Open Source Community: Understand and use select open source tools for development, code analysis and transformation, and deployment; Modify a module in an Open Source Product: Identify a functional and/or a critical missing feature / or a potential improvement.



Product Discovery and Requirements Engineering

Finding and defining product opportunities; Market research vs Product discovery; Product discovery techniques - framing, assessing opportunities, planning, ideation, prototyping, testing transformation; Product discovery approaches, frameworks and tools; User Research and experiments; Creation of discovery hypothesis, measurement for product-market fit, MVP specification; OKRs, KPIs definition; Requirements specification and validation; Agile requirements: User personas, Stories, Epics, Themes; Acceptance tests, Product Backlog, Story Maps, Wireframes, Storyboards, Prototypes; Requirements estimation and prioritization techniques; Managing use case evolution.

Product Strategy and Planning

Market scanning and analysis, Strategy Formulation, Strategy Implementation and Control, Strategic Issues in Managing Technology & Innovation, Creating and validating Opportunity Hypothesis; Product vision and product strategy, Principles of Product Vision and Strategy Product objectives; Product Roadmap: Planning, prioritization, development and communication of Roadmap, Roadmap changes; Product Lines and Portfolios. Portfolio Roadmaps; Evaluating product portfolio, OKRs, KPIs; New Products: Proposal, Development, and Launch; Outsourcing, Licensing models, Economics of Software: Development Cost (Buying/Licensing, Outsourcing/Building), Deployment Cost (Packaging and Distribution, Hosting, Scaling, and Usage), Maintenance Cost; Costing vs. pricing (B2B vs. B2C, Services, Usage models); Product release planning: Product evangelism; GTM and Sales strategy; Product positioning and branding.

Communication, Estimation, and Negotiation

Product Manager's Roles and Responsibilities: Understand organizational culture, product stakeholders and their perspectives, Effective product descriptions and presentations, Product news and crisis communication; The cross-functional nature of product manager's work: Strategic and tactical communication, Working with engineering teams, Working with design teams, Working with customerfacing stakeholders, Working with customers; Networking skills; Product-to-Project Translation – Resource (human resources, tools/technologies, and time) estimation and prioritization. Negotiation: Strategic negotiation with leadership; Tactical negotiation with internal (i.e. design/engineering) teams and customerfacing stakeholders.



Product Analytics

Concepts, approaches and process for data Analytics; Product Analytics scope; Qualitative and Quantitative Analysis techniques; Product vs Marketing analytics; Analytics in product lifecycle; Product analytics design; Product phases, goals and metrics; Analytical frameworks; Direct/Indirect, Exploratory, Descriptive/Statistical, Predictive product analytics; Product Analytics tools and platforms; Web and Mobile analytics; Other relevant analysis techniques.

Marketing

Definition and scope, fundamentals of consumer behaviour, competitive behaviour, demand estimation, new product introduction, channels of distribution, advertising and other sales promotion, positioning, marketing regulation, market research, basics of industrial marketing.

Object Oriented Analysis and Design

Object orientation concepts, theories and principles; fundamental concepts of the object model: classes, objects, methods and messages, encapsulation and inheritance, interface and implementation, reuse and extension of classes, inheritance and polymorphism; process of object-oriented requirements specification, analysis and design; notations for object-oriented analysis and design; case studies and applications using some object oriented programming languages.

Software Project Management

Managing a software development project, concepts, objects of a project, environment of a software project, system development life cycle, tools, review process; documentation in software program management, procedures, diagramming techniques, management; Planning and monitoring a software project, project planning, management tools, software project definitions, project management packages, project control; software project definition, classification, project sizes and methodologies, feasibility, requirements and start-up; programmer productivity; software planning, control tools, accelerated design; prototyping and role in software project management; software production and software project management; software system installation, managing testing requirements, test plans, alpha and beta systems; emerging directions in project management.



Eligibility Criteria

The minimum eligibility to apply: Employed professionals holding B. Tech., B.E, M.Sc., MCA, or equivalent in relevant disciplines with at least 60% aggregate marks and minimum one year of work experience after the completion of the degree in relevant domains.

If you are an IT professional in a technical role such as Software Developer, Test Engineer, Lead Engineer, Architect, or techno-managerial roles such as Product Manager and Project Manager, you should consider applying to the programme.



Fee Structure

The following fees schedule is applicable for candidates seeking new admission during the academic year 2025-26.



Easy Monthly Payment Option with 0% Interest and 0 Down Payment

Instant EMI option with 0% interest and 0 Down Payment is now available that allows you to pay programme fee in an easy and convenient way.

- Instant online approval in seconds
- No Credit Cards/ CIBIL score required
- Easy & Secure online process using Aadhaar and PAN number
- Anyone with a Salary Account with Netbanking can apply Option to submit fee using easy- EMI with 0% interest and 0 down payment

Admission Open

[Click here](#)

to learn more

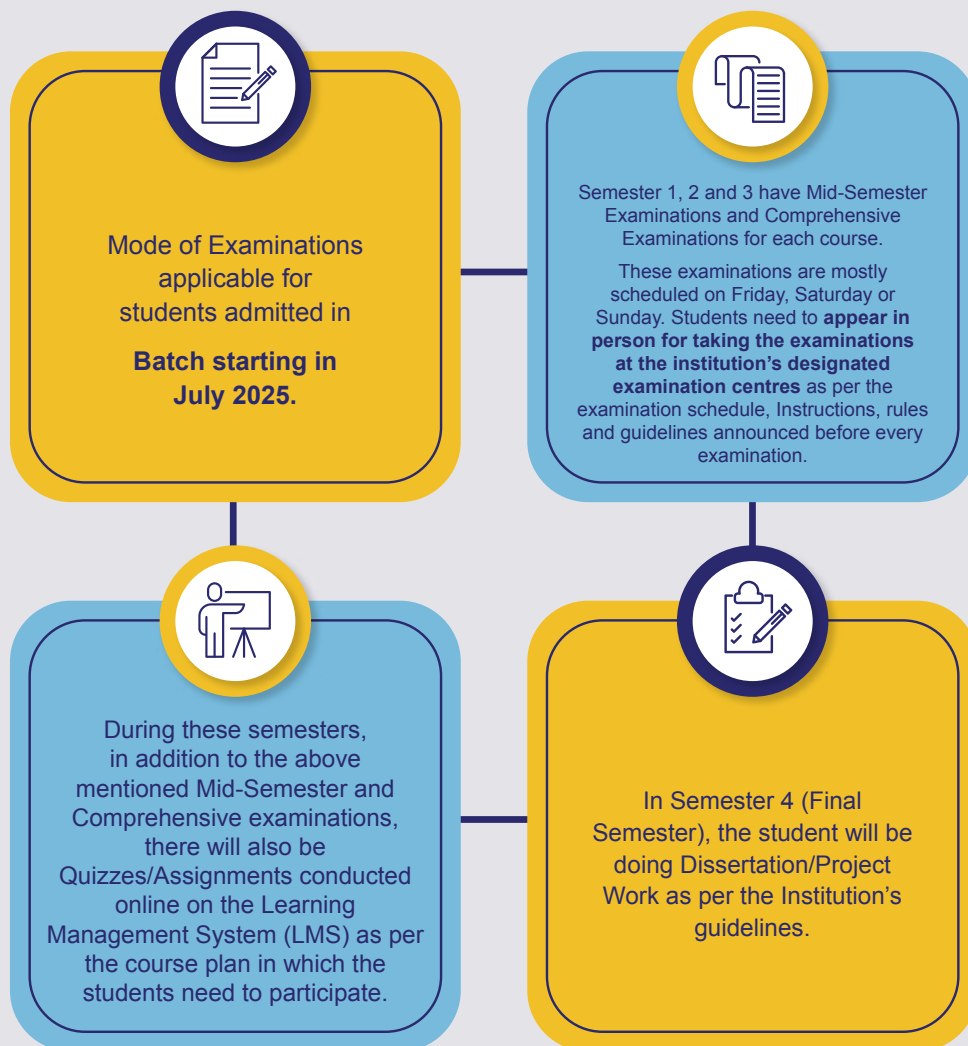


All the above fees are non-refundable.

Important: For every course in the programme, institute will recommend textbooks, students would need to procure these textbooks on their own.



Mode of Examination



Students can take their examination at any of our **34 designated examination centres in India** at the following locations:

- **South Zone:** Bangalore, Chennai, Hyderabad, Mysore, Vijayawada, Visakhapatnam, Kochi, Thiruvananthapuram, Madurai, Coimbatore.
- **North Zone:** Delhi NCR, Gurugram, Noida, Faridabad, Jaipur, Chandigarh, Lucknow, Udaipur, Pilani.
- **West Zone:** Mumbai, Pune, Ahilya Nagar, Goa, Ahmedabad, Vadodara, Surat, Indore, Nagpur, Bhopal, Raipur.
- **East Zone:** Kolkata, Guwahati, Jamshedpur, Bhubaneswar.

In addition to these locations, the Institution also has a designated examination centre in **Dubai**.



For International Students:

- In addition to the above locations, the institution also has a designated international examination centre, located in **Dubai**.
 - To facilitate the learning of international students, applying from any other location except India and Dubai, the mode of examinations will be online, which can be availed by meeting the requirements of the institute.
- a). Scanned copy of the visa for the country in which you are currently residing. The visa should be currently valid. No expired visas shall be considered,
 - b). Scanned copy of government-issued ID from the residing country
 - c). HR recommendation or endorsement letter from the employer, stating the location of your work.
- Indian students, who are temporarily based out of India, can also avail of online examinations **on request** by meeting the above-mentioned requirements of the institute.



How to Apply

Login to our Application Centre to apply for the program [Click Here](#).

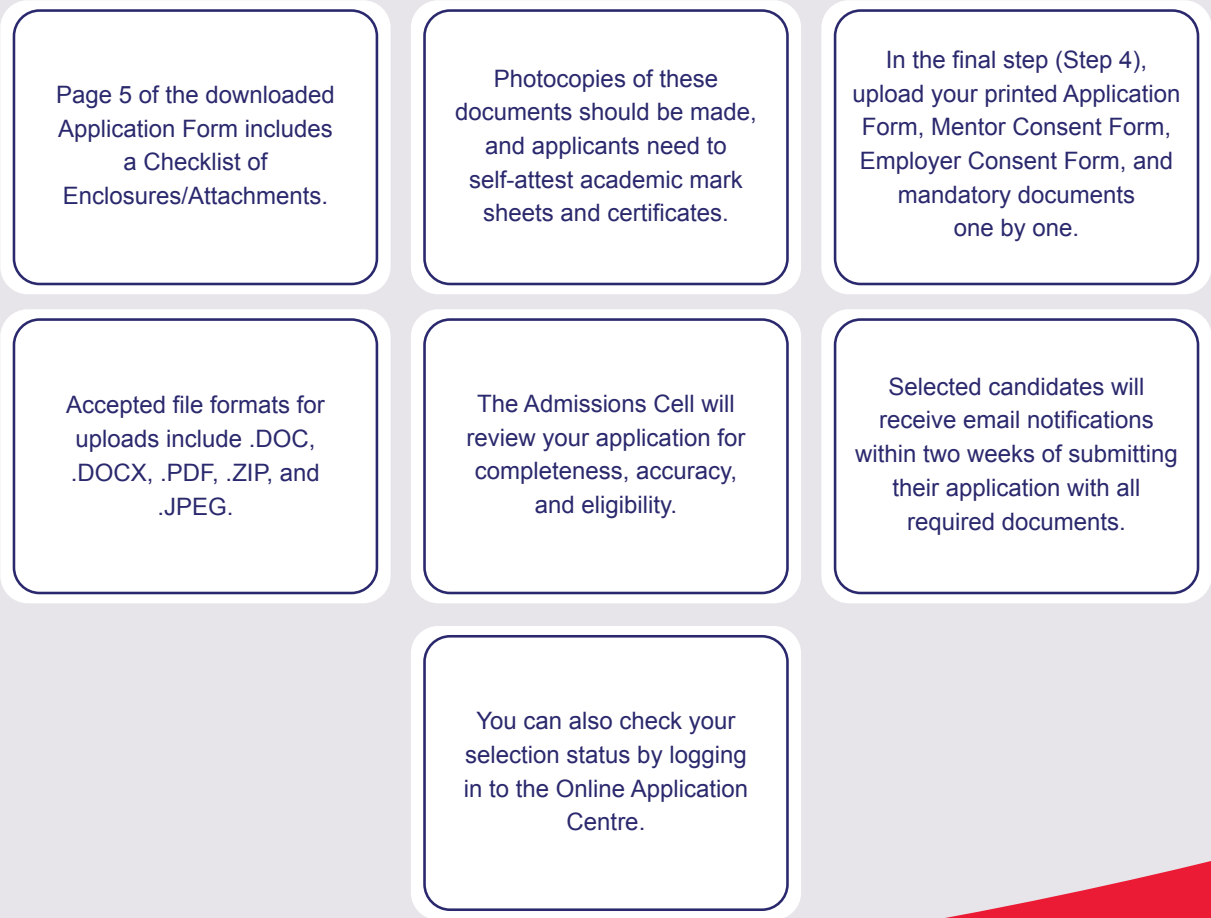
Points to Note

- a) Make photocopies of the documents mentioned in the Checklist.
- b) Applicants are required to self-attest all academic mark sheets and certificates.
- c) On page no. 3 a section called the Employer Consent Form. This form needs to be authorized by your organisation's HR or any other authorised signatory of the company.
- d) On page no. 4 is a section called the Mentor Consent Form. The Mentor Consent Form needs to be signed by the Mentor.



Who is a mentor:

- Candidates applying to Work Integrated Learning Programmes must choose a Mentor, who will monitor the academic progress of the candidate, and act as an advisor & coach for successful completion of the programme.
 - Candidates should ideally choose the immediate supervisor or another senior person from the same organisation. In case a suitable mentor is not available in the same organisation, a candidate could approach a senior person in another organisation who has the required qualifications. Wherever the proposed Mentor is not from the same employing organization as that of the candidate, a supporting document giving justification for the same should be provided by the candidate’s employer.
 - Candidates applying to B.Tech. programmes should choose a Mentor who is an employed professional with B.E./ B.S./ B.Tech./ M.Sc./ A.M.I.E./ Integrated First Degree of BITS or equivalent. Candidates applying to M.Tech., M.Sc., MBA, M.Phil programme should choose a Mentor who is an employed professional with:
 - B.E./ M.Sc./ M.B.A./ M.C.A./ M.B.B.S. etc. and with a minimum of five years of relevant work experience.
- OR
- M.E./ M.S./ M.Tech./ M.Phil./ M.D./ Higher Degree of BITS or equivalent.



Students **Speak**



I chose BITS Pilani WILP for its tailored curriculum, offering a seamless integration of technology areas and a flexible elective system from the very first semester, which has proven to be fantastic.

Sidharth Gurunath

Cloud Practice Head, Bristlecone
Participant of M.Tech. Software Engineering



My WILP experience has been fantastic. The program's continuous evaluation, interaction with diverse peers, and supportive professors make it feel like a return to college culture. Overall, it's been a great journey.

Mrinmoy Ganguly

User Experience Consultant, Cognizant
Participant of M.Tech. Software Engineering



UGC Approval

BITS Pilani is an Institution of Eminence under UGC (Institution of Eminence Deemed to be Universities) Regulations, 2017. The Work Integrated Learning Programmes (WILP) of BITS Pilani constitutes a unique set of educational offerings for working professionals. WILP are an extension of programmes offered at the BITS Pilani Campuses and are comparable to our regular programmes both in terms of unit/credit requirements as well as academic rigour. In addition, it capitalises and further builds on practical experience of students through high degree of integration, which results not only in upgradation of knowledge, but also in up skilling, and productivity increase. The programme may lead to award of degree, diploma, and certificate in science, technology/engineering, management, and humanities and social sciences.

On the recommendation of the Empowered Expert Committee, UGC in its 548th Meeting held on 09.09.20 has approved the continued offering of BITS Pilani's Work Integrated Learning programmes.

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