**Software Requirements Specification (SRS)**

**Marketing & Finance Module - ERP System**

**Date: August 2025**

**1. Introduction**

**1.1 Purpose**

This document specifies the requirements for the Marketing & Finance Module of the Educational ERP system, focusing on financial management, marketing campaign tracking, and business intelligence for educational institutions.

**1.2 Scope**

The Marketing & Finance Module manages:

* Student fee collection and payment processing
* Financial reporting and budget management
* Marketing campaign management and analytics
* Revenue tracking and forecasting
* Expense management and approval workflows
* ROI analysis and business intelligence
* Financial aid and scholarship management

**2. Functional Requirements**

**2.1 Fee Management System**

**Priority**: High

**Requirements:**

* **FR-F1.1**: System shall generate tuition invoices automatically based on enrollment
* **FR-F1.2**: System shall support multiple payment methods (credit card, bank transfer, cash)
* **FR-F1.3**: System shall track payment status and send reminders
* **FR-F1.4**: System shall handle partial payments and payment plans
* **FR-F1.5**: System shall generate payment receipts and confirmations
* **FR-F1.6**: System shall support refund processing and adjustments
* **FR-F1.7**: System shall integrate with payment gateways securely
* **FR-F1.8**: System shall handle different fee structures (full-time, part-time, international)

**2.2 Financial Management**

**Priority**: High

**Requirements:**

* **FR-F2.1**: System shall track all income sources (tuition, donations, grants)
* **FR-F2.2**: System shall manage operational expenses and categorization
* **FR-F2.3**: System shall support budget creation and monitoring
* **FR-F2.4**: System shall provide accounts payable and receivable management
* **FR-F2.5**: System shall generate financial statements (P&L, Balance Sheet, Cash Flow)
* **FR-F2.6**: System shall support multi-currency transactions
* **FR-F2.7**: System shall handle tax calculations and reporting
* **FR-F2.8**: System shall provide cost center allocation and tracking

**2.3 Marketing Campaign Management**

**Priority**: Medium

**Requirements:**

* **FR-F3.1**: System shall create and manage marketing campaigns
* **FR-F3.2**: System shall track leads from various sources (web, events, referrals)
* **FR-F3.3**: System shall manage prospect communications and follow-ups
* **FR-F3.4**: System shall track conversion rates from lead to enrollment
* **FR-F3.5**: System shall analyze campaign ROI and effectiveness
* **FR-F3.6**: System shall support email marketing automation
* **FR-F3.7**: System shall manage event planning and attendance tracking
* **FR-F3.8**: System shall integrate with social media platforms for analytics

**2.4 Financial Analytics and Reporting**

**Priority**: Medium

**Requirements:**

* **FR-F4.1**: System shall generate monthly financial summary reports
* **FR-F4.2**: System shall provide real-time financial dashboards
* **FR-F4.3**: System shall create budget vs. actual variance reports
* **FR-F4.4**: System shall produce cash flow forecasting
* **FR-F4.5**: System shall generate enrollment revenue projections
* **FR-F4.6**: System shall provide expense analysis and trending
* **FR-F4.7**: System shall support custom financial reporting
* **FR-F4.8**: System shall create regulatory compliance reports

**2.5 Scholarship and Financial Aid**

**Priority**: Medium

**Requirements:**

* **FR-F5.1**: System shall manage scholarship applications and approvals
* **FR-F5.2**: System shall track financial aid eligibility and disbursements
* **FR-F5.3**: System shall handle work-study program management
* **FR-F5.4**: System shall process loan applications and tracking
* **FR-F5.5**: System shall generate financial aid award letters
* **FR-F5.6**: System shall track scholarship renewal criteria and compliance
* **FR-F5.7**: System shall integrate with external financial aid systems
* **FR-F5.8**: System shall provide need-based analysis calculations

**3. Use Case Diagram - Marketing & Finance Module**

Marketing & Finance Module Use Cases

Finance Manager -------------> Generate Financial Reports

-----> Create Budgets

-----> Process Payments

-----> Manage Expenses

-----> Monitor Cash Flow

-----> Handle Refunds

Marketing Manager -----------> Create Campaigns

-----> Track Leads

-----> Analyze ROI

-----> Manage Events

-----> Generate Marketing Reports

Accountant ------------------> Record Transactions

-----> Reconcile Accounts

-----> Process Invoices

-----> Generate Tax Reports

-----> Audit Financial Records

Student ---------------------> Make Payments

-----> View Payment History

-----> Apply for Financial Aid

-----> Request Payment Plans

-----> Download Receipts

Cashier ---------------------> Process Cash Payments

-----> Issue Receipts

-----> Handle Daily Deposits

-----> Manage Petty Cash

Financial Aid Officer -------> Process Aid Applications

-----> Disburse Financial Aid

-----> Monitor Aid Compliance

-----> Generate Aid Reports

Marketing Analyst -----------> Track Campaign Performance

-----> Analyze Lead Sources

-----> Create Conversion Reports

-----> Monitor Social Media Metrics

**4. Class Diagram - Marketing & Finance Module**

Invoice

├── invoiceId: String

├── studentId: String (FK)

├── academicPeriod: String

├── invoiceDate: Date

├── dueDate: Date

├── totalAmount: Decimal

├── paidAmount: Decimal

├── status: InvoiceStatus

├── paymentPlan: PaymentPlan

└── methods: calculateBalance(), sendReminder()

Payment

├── paymentId: String

├── invoiceId: String (FK)

├── paymentDate: Date

├── amount: Decimal

├── paymentMethod: PaymentMethod

├── transactionId: String

├── status: PaymentStatus

├── processedBy: String

└── methods: processRefund(), generateReceipt()

Budget

├── budgetId: String

├── name: String

├── fiscalYear: Integer

├── department: String

├── totalBudget: Decimal

├── allocatedAmount: Decimal

├── spentAmount: Decimal

├── remainingAmount: Decimal

├── status: BudgetStatus

└── methods: allocateFunds(), checkAvailability()

Expense

├── expenseId: String

├── budgetId: String (FK)

├── category: ExpenseCategory

├── description: String

├── amount: Decimal

├── expenseDate: Date

├── approvedBy: String

├── vendor: String

├── receiptUrl: String

└── methods: submitForApproval(), attachReceipt()

Campaign

├── campaignId: String

├── name: String

├── type: CampaignType

├── startDate: Date

├── endDate: Date

├── budget: Decimal

├── actualSpend: Decimal

├── targetAudience: String

├── status: CampaignStatus

└── methods: calculateROI(), trackConversions()

Lead

├── leadId: String

├── campaignId: String (FK)

├── firstName: String

├── lastName: String

├── email: String

├── phone: String

├── source: LeadSource

├── status: LeadStatus

├── assignedTo: String

├── createdDate: Date

├── lastContactDate: Date

└── methods: convertToStudent(), updateStatus()

FinancialAid

├── aidId: String

├── studentId: String (FK)

├── aidType: AidType

├── amount: Decimal

├── academicYear: String

├── status: AidStatus

├── applicationDate: Date

├── approvalDate: Date

├── renewalRequired: Boolean

└── methods: checkEligibility(), processRenewal()

Transaction

├── transactionId: String

├── accountId: String

├── transactionDate: Date

├── description: String

├── debitAmount: Decimal

├── creditAmount: Decimal

├── balance: Decimal

├── category: String

├── reference: String

└── methods: reverseTransaction(), reconcile()

MarketingEvent

├── eventId: String

├── campaignId: String (FK)

├── eventName: String

├── eventDate: Date

├── venue: String

├── budget: Decimal

├── attendeeCount: Integer

├── leadsGenerated: Integer

├── status: EventStatus

└── methods: trackAttendance(), calculateCost()

**5. Sequence Diagram - Payment Processing**

Student -> PaymentPortal: Select payment option

PaymentPortal -> PaymentService: getOutstandingInvoices()

PaymentService -> Database: SELECT unpaid invoices

Database -> PaymentService: Invoice list

PaymentService -> PaymentPortal: Display invoices

Student -> PaymentPortal: Enter payment details

PaymentPortal -> PaymentGateway: processPayment()

PaymentGateway -> PaymentPortal: Payment response

PaymentPortal -> PaymentService: recordPayment()

PaymentService -> Database: INSERT payment record

PaymentService -> Database: UPDATE invoice status

Database -> PaymentService: Confirmation

PaymentService -> ReceiptService: generateReceipt()

ReceiptService -> EmailService: sendReceipt()

EmailService -> Student: Receipt email

PaymentService -> NotificationService: paymentConfirmation()

NotificationService -> FinanceManager: Payment notification

**6. Sequence Diagram - Budget Approval Process**

DepartmentHead -> BudgetSystem: Create budget request

BudgetSystem -> BudgetService: validateBudgetData()

BudgetService -> BudgetSystem: Validation result

BudgetSystem -> BudgetService: submitForApproval()

BudgetService -> Database: INSERT budget request

BudgetService -> WorkflowService: initiateApproval()

WorkflowService -> NotificationService: notifyApprovers()

NotificationService -> FinanceManager: Approval notification

FinanceManager -> BudgetSystem: Review budget

FinanceManager -> BudgetSystem: Approve/Reject

BudgetSystem -> BudgetService: updateBudgetStatus()

BudgetService -> Database: UPDATE budget status

BudgetService -> NotificationService: statusUpdate()

NotificationService -> DepartmentHead: Decision notification

**7. Activity Diagram - Lead Conversion Process**

Start

↓

New Lead Captured

↓

Assign Lead Score

↓

Route to Sales Team

↓

Initial Contact Attempt

↓

[Contact Successful?] → No → Schedule Follow-up

↓

Update Lead Status

↓

Return to Contact Attempt

↓

Qualify Lead Interest

↓

[Qualified?] → No → Mark as Unqualified

↓

Archive Lead

↓

End

↓

Present Program Information

↓

Schedule Campus Visit/Demo

↓

[Visit Completed?] → No → Send Follow-up Materials

↓

Schedule Alternative Contact

↓

Assess Interest Level

↓

[Ready to Enroll?] → No → Add to Nurture Campaign

↓

Set Follow-up Schedule

↓

Process Application

↓

[Application Approved?] → No → Provide Feedback

↓

Offer Reapplication

↓

Convert to Student

↓

Update CRM Records

↓

Calculate Campaign ROI

↓

Generate Conversion Report

↓

End

**8. Activity Diagram - Monthly Financial Closing**

Start

↓

Initiate Month-End Process

↓

Reconcile Bank Accounts

↓

[Reconciliation Complete?] → No → Investigate Discrepancies

↓

Adjust Records

↓

Return to Reconcile

↓

Process Accruals and Deferrals

↓

Generate Trial Balance

↓

Review Expense Categories

↓

[Expenses Properly Classified?] → No → Reclassify Entries

↓

Update Categories

↓

Calculate Depreciation

↓

Process Journal Entries

↓

Generate Financial Statements

↓

Review Financial Ratios

↓

[Ratios Within Acceptable Range?] → No → Flag for Management Review

↓

Document Variances

↓

Prepare Management Reports

↓

Close Accounting Period

↓

Archive Month-End Documents

↓

Distribute Reports to Stakeholders

↓

End

**9. Non-Functional Requirements**

**9.1 Performance Requirements**

* **NFR-F1**: Payment processing shall complete within 5 seconds
* **NFR-F2**: Financial reports shall generate within 15 seconds
* **NFR-F3**: Dashboard shall load within 3 seconds
* **NFR-F4**: Campaign analytics shall refresh within 2 seconds

**9.2 Security Requirements**

* **NFR-F5**: Payment data shall be PCI DSS compliant
* **NFR-F6**: Financial data shall be encrypted with AES-256
* **NFR-F7**: Access to financial reports shall require multi-factor authentication
* **NFR-F8**: All financial transactions shall maintain complete audit trails

**9.3 Reliability Requirements**

* **NFR-F9**: Payment gateway shall have 99.9% uptime
* **NFR-F10**: Financial data shall be backed up every 4 hours
* **NFR-F11**: System shall support disaster recovery within 2 hours
* **NFR-F12**: Transaction integrity shall be maintained during system failures

**9.4 Integration Requirements**

* **NFR-F13**: System shall integrate with major payment processors
* **NFR-F14**: System shall support bank file formats (ACH, wire transfers)
* **NFR-F15**: System shall integrate with accounting software (QuickBooks, SAP)
* **NFR-F16**: System shall support tax reporting system integration

**10. Database Design - Key Tables**

**10.1 Invoices Table**

CREATE TABLE invoices (

invoice\_id VARCHAR(20) PRIMARY KEY,

student\_id VARCHAR(20) NOT NULL,

academic\_period VARCHAR(20),

invoice\_date DATE NOT NULL,

due\_date DATE NOT NULL,

total\_amount DECIMAL(10,2) NOT NULL,

paid\_amount DECIMAL(10,2) DEFAULT 0.00,

status ENUM('Pending', 'Partial', 'Paid', 'Overdue', 'Cancelled'),

payment\_plan\_id VARCHAR(20),

created\_by VARCHAR(20),

FOREIGN KEY (student\_id) REFERENCES students(student\_id)

);

**10.2 Payments Table**

CREATE TABLE payments (

payment\_id VARCHAR(20) PRIMARY KEY,

invoice\_id VARCHAR(20) NOT NULL,

payment\_date DATETIME NOT NULL,

amount DECIMAL(10,2) NOT NULL,

payment\_method ENUM('Cash', 'Credit Card', 'Bank Transfer', 'Check'),

transaction\_id VARCHAR(50),

status ENUM('Pending', 'Completed', 'Failed', 'Refunded'),

processed\_by VARCHAR(20),

gateway\_response TEXT,

FOREIGN KEY (invoice\_id) REFERENCES invoices(invoice\_id)

);

**10.3 Marketing Campaigns Table**

CREATE TABLE marketing\_campaigns (

campaign\_id VARCHAR(20) PRIMARY KEY,

name VARCHAR(200) NOT NULL,

type ENUM('Digital', 'Print', 'Event', 'Social Media', 'Email'),

start\_date DATE NOT NULL,

end\_date DATE NOT NULL,

budget DECIMAL(10,2),

actual\_spend DECIMAL(10,2) DEFAULT 0.00,

target\_audience TEXT,

status ENUM('Planning', 'Active', 'Completed', 'Cancelled'),

created\_by VARCHAR(20),

created\_date DATETIME DEFAULT CURRENT\_TIMESTAMP

);

**10.4 Leads Table**

CREATE TABLE leads (

lead\_id VARCHAR(20) PRIMARY KEY,

campaign\_id VARCHAR(20),

first\_name VARCHAR(50) NOT NULL,

last\_name VARCHAR(50) NOT NULL,

email VARCHAR(100) NOT NULL,

phone VARCHAR(20),

source ENUM('Website', 'Social Media', 'Event', 'Referral', 'Advertisement'),

status ENUM('New', 'Contacted', 'Qualified', 'Converted', 'Lost'),

assigned\_to VARCHAR(20),

created\_date DATETIME DEFAULT CURRENT\_TIMESTAMP,

last\_contact\_date DATETIME,

conversion\_date DATETIME,

FOREIGN KEY (campaign\_id) REFERENCES marketing\_campaigns(campaign\_id)

);

**11. Integration Points**

**11.1 Internal Integrations**

* Academic Module: Student enrollment data for fee calculation
* HR Module: Employee expense reimbursements and payroll
* Main System: User authentication and role-based permissions

**11.2 External Integrations**

* Payment Gateways (Stripe, PayPal, Square)
* Banking Systems (ACH, Wire Transfer)
* Accounting Software (QuickBooks, SAP, Oracle Financials)
* CRM Systems (Salesforce, HubSpot)
* Email Marketing Platforms (Mailchimp, Constant Contact)
* Social Media APIs (Facebook, LinkedIn, Google Analytics)

**12. Business Rules**

**12.1 Financial Rules**

* Students with outstanding balances cannot enroll in new courses
* Refunds must be approved by Finance Manager for amounts over $500
* Payment plans require 20% down payment minimum
* Late payment fees are applied after 30 days past due

**12.2 Marketing Rules**

* Campaign budgets cannot exceed allocated departmental budget
* Lead follow-up must occur within 24 hours of capture
* Conversion tracking is mandatory for all paid campaigns
* ROI calculations must be updated weekly for active campaigns

**13. Acceptance Criteria**

**13.1 Payment Processing**

* All major payment methods are supported and functional
* Payment confirmations are generated and delivered immediately
* Failed payments trigger appropriate notifications and retry mechanisms
* Refund processing completes within defined business rules

**13.2 Financial Reporting**

* All standard financial reports generate accurately
* Budget vs. actual variances are calculated correctly
* Cash flow projections reflect real-time data
* Compliance reports meet regulatory requirements

**13.3 Marketing Analytics**

* Campaign ROI calculations are accurate and real-time
* Lead conversion tracking is complete and auditable
* Marketing dashboards display current performance metrics
* Integration with external marketing tools functions properly

**13.4 Data Integrity**

* All financial transactions maintain audit trails
* Payment and invoice data reconciles accurately
* Marketing campaign data integrates with lead management
* System maintains data consistency across all modules