

AMERICAN SCIENCE & ENGINEERING, INC.

Form 11-K

June 27, 2013

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM 11-K

(Mark One)

- ANNUAL REPORT PURSUANT TO SECTION 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934 [FEE REQUIRED]**

For the calendar year ended December 31, 2012.

OR

- TRANSITION REPORT PURSUANT TO SECTION 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934 [NO FEE REQUIRED]**

For the transition period from _____ to _____

Commissions file number 1-6549

A. Full title of the plan and address of the plan, if different from that of issuer named below:

American Science and Engineering, Inc.

401(k) and Profit Sharing Plan

B. Name of issuer of the securities held pursuant to the plan and the address of its principal executive offices:

American Science and Engineering

829 Middlesex Turnpike,

Billerica, MA 01821

American Science and Engineering, Inc.

401(k) and Profit Sharing Plan

Financial Statements
and Supplemental Schedule

December 31, 2012 and 2011

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Report of Independent Registered Public Accounting Firm

To the Plan Administrator

America Science and Engineering, Inc. 401(k) and Profit Sharing Plan

Billerica, Massachusetts

We have audited the accompanying Statements of Net Assets Available for Benefits of the American Science and Engineering, Inc. 401(k) and Profit Sharing Plan (the Plan) as of December 31, 2012 and 2011, and the Related Statement of Changes in Net Assets Available for Benefits for the year ended December 31, 2012. These financial statements are the responsibility of the Plan's management. Our responsibility is to express an opinion on these financial statements based on our audits.

We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the financial statements referred to above present fairly, in all material respects, the Net Assets Available for Benefits of the Plan as of December 31, 2012 and 2011, and the changes in net assets available for benefits for the year ended December 31, 2012 in conformity with accounting principles generally accepted in the United States of America.

Our audits were performed for the purpose of forming an opinion on the basic financial statements taken as a whole. The supplemental Schedule H, Line 4i - Schedule of Assets (Held at End of Year) as of December 31, 2012 is presented for additional analysis and is not a required part of the basic financial statements, but is supplementary information required by the Department of Labor's Rules and Regulations for Reporting and Disclosure under the Employee Retirement Income Security Act of 1974. The supplemental schedule is the responsibility of the Plan's management. The supplemental schedule has been subjected to the auditing procedures applied in the audits of the basic financial statements and, in our opinion, is fairly stated in all material respects in relation to the basic financial statements taken as a whole.

/s/ McGladrey LLP

June 27, 2013

Boston, Massachusetts

American Science and Engineering, Inc.

401(k) and Profit Sharing Plan

Statements of Net Assets Available for Benefits

December 31, 2012 and 2011

	2012	2011
Assets:		
Investments, at fair value:		
Registered Investment Companies	\$ 40,501,539	\$ 32,732,636
American Science and Engineering, Inc. company stock	5,942,589	6,456,946
Common/Collective Trust	2,348,816	1,694,504
Total investments	48,792,944	40,884,086
Receivables:		
Notes receivable from participants	870,695	929,273
Total receivables	870,695	929,273
Net assets available for benefits	\$ 49,663,639	\$ 41,813,359

The accompanying notes are an integral part of these financial statements.

American Science and Engineering, Inc.

401(k) and Profit Sharing Plan

Statement of Changes in Net Assets Available for Benefits

For the Year Ended December 31, 2012

	2012
Investment Income:	
Net appreciation in fair value of investments	\$ 3,791,458
Interest and dividend income	1,431,828
Total investment income	5,223,286
Interest income on notes receivable from participants	36,148
Contributions:	
Employer contributions	1,070,350
Participant contributions	3,353,937
Rollover contributions	294,169
Total contributions	4,718,456
	9,977,890
Deductions from net assets attributable to:	
Benefits paid directly to participants	2,127,610
Total deductions	2,127,610
Net increase in net assets available for benefits	7,850,280
Net assets available for benefits, beginning of year	41,813,359
Net assets available for benefits, end of year	\$ 49,663,639

The accompanying notes are an integral part of these financial statements.

1. PLAN DESCRIPTION

General

Effective April 1, 1988 American Science and Engineering, Inc. (the Company or the Plan Sponsor) adopted the American Science and Engineering, Inc. 401(k) and Profit Sharing Plan (the Plan) for its eligible employees. The following description of the Plan provides only general information. Participants should refer to the plan document for a more complete description of the Plan s provisions. The Plan is subject to the provisions of the Employee Retirement Income Security Act of 1974 (ERISA).

The Company is the plan administrator. Putnam Fiduciary Trust Company (Putnam) is the trustee of Plan assets.

Eligibility

The Plan allows for initial participation by any employee who has attained the age of 21 years. Entry date is the first day of the month following his or her employment and attainment of age 21. The Plan provides for automatic enrollment into the Plan for any eligible employee upon hire. The employee is treated as having elected a 3% contribution rate unless the employee expressly elects a different amount or elects not to contribute. If an employee elects not to contribute upon eligibility, future participation is still available upon request.

Contributions

Participants may contribute amounts up to 100% of their annual compensation, subject to certain limitations, as defined by the Plan and the Internal Revenue Code (IRC). Participants have the authority to direct the investment of their contributions among several investment options.

The Board of Directors can elect to make quarterly matching contributions in the form of Company stock or cash, at its discretion. Effective April 1, 2011, the Board of Directors elected that any future Company match be funded with cash instead of Company stock. The Company s matching contribution equaled 50% of each participant s contribution up to a maximum of 3% of compensation for 2012. For the year ended December 31, 2012, the Company contributed cash of \$ 1,070,350. The Company can also make profit sharing contributions to the Plan but elected not to do so in 2012.

Vesting

Participants are fully vested in their contributions and the earnings thereon. Employer matching contributions and profit sharing contributions are immediately 100% vested.

Benefits

Upon termination of employment, death, disability, retirement, or for hardships, as defined in the Plan document, any participant of the Plan is eligible to receive a distribution of their vested account in the Plan. Distribution of benefits may be made in lump-sum amounts equal to the vested value of his or her account or in a series of cash payments, in substantially equal installments. Some distributions may be subject to joint and survivor annuity requirements.

Administrative Expenses

Administrative expenses of the Plan are paid directly by the Company, except for the investment fees of mutual funds and administrative costs associated with participant loans.

Participant Accounts

Individual accounts are maintained for each of the Plan's participants to reflect the participant's contributions, related employer matching contributions and profit sharing contributions, if any, as well as the participant's share of the Plan's earnings.

Rollovers

With the approval of the Plan Sponsor, the Plan may receive any amounts received by an employee as a distribution from another qualified plan provided that the receipt of such amounts does not adversely affect the qualified tax status of the Plan. Participants are fully vested in these amounts.

Notes Receivable from Participants

Participants may make loan withdrawals up to 50% of their vested account balance up to a maximum of \$50,000 (less the highest outstanding loan balance in the previous 12 months). Participants may only have one loan outstanding at a time. Loans are required to be repaid within five years, except for qualifying principal residence loans which must be repaid within 15 years. Interest will be charged at a reasonable rate established by the Company, on a nondiscriminatory basis, taking into consideration the interest rates than being charged on similar loans by independent commercial lenders.

Notes receivable from participants are measured at their unpaid balance plus any accrued but unpaid interest. Delinquent loans are treated as distributions based upon the terms of the Plan document.

Investment Elections

Each participant shall direct the investment of his or her deferrals within their own account and may select from several mutual funds, Company Stock and a common/collective trust. At the time of automatic enrollment, if a participant has not elected an investment option, their deferral contribution will be made to the Putnam Asset Allocation Balanced Fund, established for them within their account.

2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Basis of Accounting

The financial statements have been prepared in accordance with accounting standards set by the Financial Accounting Standards Board (FASB). The FASB sets generally accepted accounting principles (U.S. GAAP) to ensure net assets available for benefits and changes in net assets available for benefits are consistently reported. References to U.S. GAAP issued by the FASB in these footnotes are to the FASB Accounting Standards Codification (FASB ASC).

Use of Estimates

The preparation of the financial statements in conformity with U.S. GAAP requires the Plan's management to use estimates and assumptions that affect the accompanying financial statements and disclosures. Actual results could differ from these estimates.

Fair Value Measurements

The Plan classifies its investments in accordance with FASB ASC 820, *Fair Value Measurements and Disclosures*. FASB ASC 820 introduces a framework for measuring fair value and expands required disclosure about fair value measurements of assets and liabilities. This framework provides a fair value hierarchy that prioritizes the inputs to valuation techniques used to measure fair value. The hierarchy gives the highest priority to unadjusted quoted prices in active markets for identical assets or liabilities (level 1 measurement) and the lowest priority to unobservable inputs (level 3 measurements). The three levels of the fair value hierarchy under FASB ASC 820 are described below:

Level 1: Inputs to the valuation methodology are unadjusted quoted prices for identical assets or liabilities in active markets that the Plan has the ability to access.

Level 2: Inputs to the valuation methodology includes:

- Quoted prices for similar assets or liabilities in active markets;
- Quoted prices for identical or similar assets or liabilities in non-active markets;
- Inputs other than quoted prices that are observable for the asset or liability;
- Inputs that are derived principally from or corroborated by observable market data by correlation or other means.

If the asset or liability has a specified (contractual) term, the Level 2 input must be

observable for substantially the full term of the asset or liability.

Level 3: Inputs to the valuation methodology are unobservable and significant to the fair value measurement.

The asset's or liability's fair value measurement level within the fair value hierarchy is based on the lowest level of any input that is significant to the fair value measurement. Valuation techniques used need to maximize the use of observable inputs and minimize the use of unobservable inputs.

To the extent that valuation is based on models or inputs that are less observable or unobservable in the market, the determination of fair value requires more judgment. Accordingly, the degree of judgment exercised by the Company in determining fair value is greatest for instruments categorized in Level 3.

Fair value is a market-based measure considered from the perspective of a market participant rather than an entity-specific measure. Therefore, even when market assumptions are not readily available, the Company's own assumptions are set to reflect those that market participants would use in pricing the asset or liability at the measurement date. The Company uses prices and inputs that are current as of the measurement date, including during periods of market dislocation. In periods of market dislocation, the observability of prices and inputs may be reduced for many instruments. This condition could cause an instrument to be reclassified from Level 1 to Level 2 or Level 2 to Level 3.

Effective January 1, 2011, the guidance in FASB ASC 820 became effective for nonfinancial assets or nonfinancial liabilities that are recorded or disclosed at fair value on a non-recurring basis. As of December 31, 2012 and 2011, the Plan does not have any nonfinancial assets or liabilities which are required to be at fair value.

FASB ASC 820 provides guidance regarding how to determine whether there has been a significant decrease in the volume and level of activity for the asset or liability when compared with normal market activity for the asset or liability. In such situations, the reporting entity may conclude that transactions or quoted prices may not be determinative of fair value, and may adjust the transactions or quoted prices to arrive at the fair value of the asset or liability. FASB ASC 820 also requires disclosures of the breakdown of debt and equity investments by major category based on nature and risks of the investments. See Note 3 for related disclosures.

FASB ASC 820 permits the use of net asset value per share, without further adjustment, to estimate the fair value of investments in investment companies that do not have readily determinable fair values. The net asset value per share must be calculated in a manner consistent with the measurement principles of the Financial Services *Investment Companies Topic* of the FASB ASC and can be used by investors in investments such as hedge funds, private equity funds, venture capital funds and real estate funds. If it is probable the investment will be sold for an amount other than net asset value, the reporting entity would be required to estimate the fair value of the investment considering all of the rights and obligations of the investment and any other market available data. In addition, FASB ASC 820 requires enhanced disclosure for the investments within the scope of this accounting update.

In January 2011, the FASB issued Accounting Standards Update (ASU) No. 2011-06, *Improving Disclosures about Fair Value Measurements* (ASU 2011-06), which primarily requires new disclosures related to the levels within the fair value hierarchy. An entity will be required to disclose significant transfers in and out of Levels 1 and 2 of the fair value hierarchy, and separately present information related to purchases, sales, issuances and settlements in the reconciliation of fair value measurements classified as Level 3. In addition, ASU 2011-06 amends the fair value disclosure requirement for pension and postretirement benefit plan assets to require this disclosure at the investment class level.

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In May 2011, FASB issued ASU No. 2011-04, *Amendments to Achieve Common Fair Value Measurement and Disclosure Requirements in U.S. GAAP and IFRSs*. This update changes certain fair value measurement principles and enhances the disclosure requirements particularly for Level 3 fair value measurements. This update is effective for reporting periods beginning on or after December 15,

2011, with early adoption prohibited, and requires prospective application. The Plan adopted the disclosures as required by ASU 2011-04 in the notes to the Plan's financial statements. See Note 3 for related disclosures.

Valuation Techniques

There have been no changes in the valuation techniques used during the current period.

Money Market and Registered Investment Companies

Valued at the quoted market prices. These securities are categorized in Level 1 as they are actively traded and no valuation adjustments have been applied.

Company Stock

Valued at the closing price reported on the active market on which the individual securities are traded, and classified as Level 1.

Common/Collective Trust

Valued at estimated fair value based on the net asset value (NAV) of shares held by the Plan at year end. The NAV is derived from the Trust's audited financial statements, based on the value on quoted prices in active markets and other observable inputs. The common/collective trust is classified as level 2.

Income Recognition

Interest income is recorded when earned. Dividends are recorded on the ex-dividend date. In the statement of changes in Net Assets Available for Benefits, the Plan presents the net appreciation (depreciation) in the fair value of investments, which consists of the realized gains or losses and the unrealized appreciation (depreciation) on those investments.

Payment of Benefits

Benefits are recorded when paid.

Reclassifications

Certain amounts in the 2011 financial statements have been reclassified to conform to the 2012 presentation.

3. FAIR VALUE MEASUREMENTS

The following table presents for each hierarchy level, the Plan's assets that are measured at fair value at December 31, 2012:

	Level 1	Level 2	Level 3	Total
Mutual funds:				
Balanced funds	\$ 11,082,685		\$	\$ 11,082,685
Growth funds	13,777,792			13,777,792
Value funds	5,361,701			5,361,701
Bond funds	7,462,917			7,462,917
Money market funds	2,816,444			2,816,444
Total mutual funds	40,501,539			40,501,539
Company stock				
	5,942,589			5,942,589
Common/collective trust		2,348,816		2,348,816
Total investments at fair value	\$ 46,444,128	\$ 2,348,816	\$	\$ 48,792,944

The following table presents for each hierarchy level, the Plan's assets that are measured at fair value at December 31, 2011:

	Level 1	Level 2	Level 3	Total
Registered investment companies:				
Balanced funds	\$ 7,096,170	\$	\$	7,096,170
Growth funds	12,668,732			12,668,732
Value funds	4,434,864			4,434,864
Bond funds	5,548,826			5,548,826
Money market funds	2,984,044			2,984,044
Total mutual funds	32,732,636			32,732,636
Company stock	6,456,946			6,456,946
Common/collective trust		1,694,504		1,694,504
Total investments at fair value	\$ 39,189,582	\$ 1,694,504	\$	\$ 40,884,086

The following table sets forth additional disclosures of the Plan's investments whose fair value is estimated using net asset value per share (or its equivalent) as of December 31, 2012:

	Fair Value	Unfunded Commitments	Redemption Frequency (If Currently Eligible)	Redemption Notice Period
Common/collective trust (a)	\$ 2,348,816	\$	Daily	N/A
	\$ 2,348,816	\$		

The following table sets forth additional disclosures of the Plan's investments whose fair value is estimated using net asset value per share (or its equivalent) as of December 31, 2011:

	Fair Value	Unfunded Commitments	Redemption Frequency (If Currently Eligible)	Redemption Notice Period
Common/collective trust (a)	\$ 1,694,504	\$	Daily	N/A
	\$ 1,694,504	\$		

(a) The Plan holds units of participation in the Putnam S&P 500 Index Fund (S&P 500 Fund) and the value of those units is determined based on the net asset value of the Plan's ownership interest in the Fund. The S&P 500 Fund invests primarily in the securities that constitute the S&P 500 Index either directly or through the purchase of shares of collective investment trusts having objectives similar to that of the S&P 500 Fund. The underlying securities of S&P 500 Fund are valued based on quoted market prices based on the last traded sales price or official closing price. The valuation of the units of participation is done daily. Issuances and redemptions of S&P 500 Fund units may be made daily, based upon the closing market value on the valuation date of the investments bought or sold and the net asset value per unit of the S&P 500 Fund.

4. INVESTMENTS

The fair values of individual investments that represent 5% or more of the Plan's net assets as of December 31, 2012 and 2011 are as follows:

	2012	2011
Investments at fair value as determined by quoted market price:		
Mutual funds:		
Columbia Acorn Fund	\$ 5,647,857	\$ 4,670,010
Pimco Total Return Fund	4,871,121	3,727,327
American Europacific Growth Fund	4,185,892	3,435,532
Putnam Dynamic Asset Allocation Growth Fund	3,978,357	3,283,642
Putnam Dynamic Asset Allocation Balanced Fund	3,972,760	3,158,960
MFS Massachusetts Investors Growth Stk R3	3,944,042	
Putnam Equity Income Fund	3,737,010	2,824,735
Putnam Money Market Fund	2,816,444	2,984,044
Putnam Income Fund	2,591,797	1,821,498
American Funds Growth Fund of America Fund		3,124,402
Other	4,756,259	3,702,486
	40,501,539	32,732,636
Company Stock:		
American Science and Engineering, Inc.	\$ 5,942,589	\$ 6,456,946
Investments as estimated fair value Common/collective trust:		
Putnam S&P 500 Index Fund	\$ 2,348,816	\$ 1,694,504

During the year ended December 31, 2012, the Plan's investments appreciated (depreciated) in value (including gains and losses on investments bought, sold, and held during the year) as follows:

Measured at quoted market prices:	
Company stock	\$ (181,762)
Registered investment companies	3,701,411
Measured at estimated fair value:	
Common/collective trust	271,809
	\$ 3,791,458

5. RISKS AND UNCERTAINTIES

The Plan invests in various investment securities. Investment securities are exposed to various risks such as interest rate, market, and credit risks. Due to the level of risk associated with certain investment securities, it is at least reasonably possible that changes in the values of investment securities will occur in the near term and that such changes could materially affect participants' account balances and the amounts reported in the Statements of Net Assets Available for Benefits.

6. FEDERAL INCOME TAX STATUS

The Plan obtained its latest determination letter on June 10, 1998 in which the Internal Revenue Service (IRS) stated that the Plan, as then designed, was in compliance with the applicable requirements of the IRC. The Plan has been amended since receiving the determination letter. The plan administrator believes that the Plan is currently designed and being operated in compliance with the applicable requirements of the IRC therefore no provision for income taxes has been included in the Plan's financial statements. The Company accounts for income taxes in

accordance with FASB ASC 740, *Income Taxes*. The Company believes that there were no uncertain tax positions that required a reserve as

of December 31, 2012 and 2011, respectively.

7. RECONCILIATION TO FORM 5500

The following is a reconciliation of Net Assets Available for Benefits per the financial statements to the Form 5500:

	2012	2011
Net assets available for benefits per the financial statements	\$ 49,663,639	\$ 41,813,359
Deemed distributions reported on Form 5500	(13,089)	(13,089)
Net assets available for benefits per Form 5500	\$ 49,650,550	\$ 41,800,270

8. PARTY-IN-INTEREST TRANSACTIONS

Putnam Fiduciary Trust Company, the custodian of the Plan during 2011 and 2012 and the trustee of the Plan effective 4/1/2011, is an affiliate of Putnam Investments, LLC. Certain plan investments are shares of mutual funds, a money market fund, and a common/collective trust fund managed by Putnam Investments. Therefore transactions with Putnam qualify as party-in-interest transactions as the term is defined in Section 3(14) of ERISA. Plan investments include publicly traded shares of common stock of the Company and the Plan issues loans to participants, which are secured by the balances in the participants' accounts. These transactions also qualify as party-in-interest transactions. All party-in-interest transactions are denoted as such on the supplemental Schedule H, Line 4(i) Schedule of Assets (Held at End of Year).

9. PLAN TERMINATION

Although the Company has expressed its intent to continue the Plan, the Company has the right to terminate the Plan subject to the provisions of ERISA.

10. SUBSEQUENT EVENTS

The Plan evaluated all events and transactions through the date of this filing. During this period there were no material recognized or unrecognized subsequent events.

Schedule H, Line 4(i) - Schedule of Assets (Held at End of Year)

Employer Identification Number **04-2962824** Plan #: **001**

(a)	(b) Identity of issue, borrower, lessor or similar party	(c) Description of Investment	(d) Cost	(e) Current value
*	American Science and Engineering, Inc.	Common Stock	\$ 3,472,630	\$ 5,942,589
	Columbia Acorn Fund	Registered investment companies	n/a	5,647,857
	Pimco Total Return Fund	Registered investment companies	n/a	4,871,121
	American Europacific Growth Fund	Registered investment companies	n/a	4,185,892
*	Putnam Dynamic Asset Allocation Growth Fund	Registered investment companies	n/a	3,978,357
*	Putnam Dynamic Asset Allocation Balanced Fund	Registered investment companies	n/a	3,972,760
	MFS Massachusetts Investors Growth Stk R3	Registered investment companies	n/a	3,944,042
*	Putnam Equity Income Fund	Registered investment companies	n/a	3,737,010
*	Putnam Money Market Fund	Money Market Fund	n/a	2,816,444
*	Putnam Income Fund	Registered investment companies	n/a	2,591,797
*	Putnam S&P 500 Index Fund	Common/Collective Trust	n/a	2,348,816
	Columbia Mid Cap Index A	Registered investment companies	n/a	2,074,145
*	Putnam Mid Cap Value Fund	Registered investment companies	n/a	1,624,691
*	Putnam Dynamic Asset Allocation Conservative Fund	Registered investment companies	n/a	569,131
	American Funds Target Date Fund R 4	Registered investment companies	n/a	488,292
*	Participant Loans	Loans to Participants 4.25%-9.25%	n/a	870,695
			\$	49,663,639

*Represents a party in-interest to the Plan.